

Hitchcock's Machine Tool Blue Book

JULY, 1929

TWENTY-FOURTH YEAR

KEYSEATING MILLER

Unlimited Application

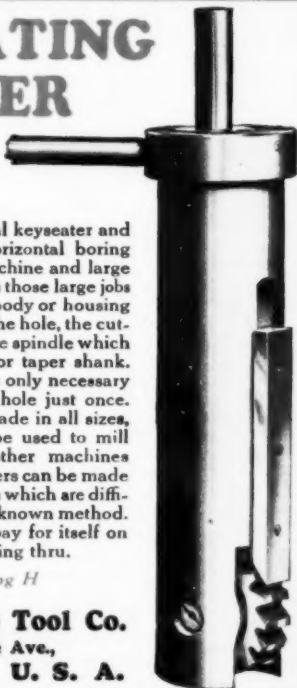
THIS miller is an internal keyseater and can be used in the horizontal boring mill, radial drilling machine and large upright drill press. It tackles those large jobs of keyseating. While the body or housing of the miller is sliding thru the hole, the cutter is rotary and driven by the spindle which is furnished with straight or taper shank. To complete a keyseat, it is only necessary to pass the miller thru the hole just once. The keyseating miller is made in all sizes, large and small, and can be used to mill keyseats in parts where other machines can't reach. These keyseaters can be made for extra long length keyseats which are difficult to produce by any other known method. One of these millers will pay for itself on the next lot of castings coming thru.

Write for Catalog H

National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, Ohio, U. S. A.

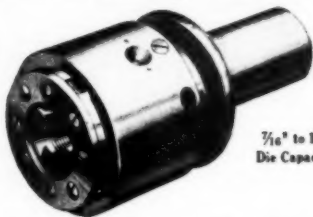


PUBLISHED AT 508 So. DEARBORN ST. CHICA

Insure Threading Profits

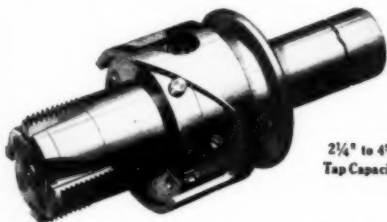
with
the

new



$\frac{7}{16}$ " to $1\frac{1}{2}$ "
Die Capacities

NAMCO THREADING TOOLS



$2\frac{1}{4}$ " to $4\frac{1}{2}$ "
Tap Capacities

Namco Opening Dies and Collapsing Taps have Quick Removable Chasers, which increase the number of pieces per day and thereby boost production and lower the cost. Namco Taps and Dies possess Stamina and Accuracy.

Write for Bulletin T-D 2907

The National Acme Company

Tap and Die Division
CLEVELAND, OHIO

New York

Detroit

Chicago

Hitchcock's

**Memorandum Of
Machinery or Equipment Wanted**

Name

Address

We are in market for

.....

.....

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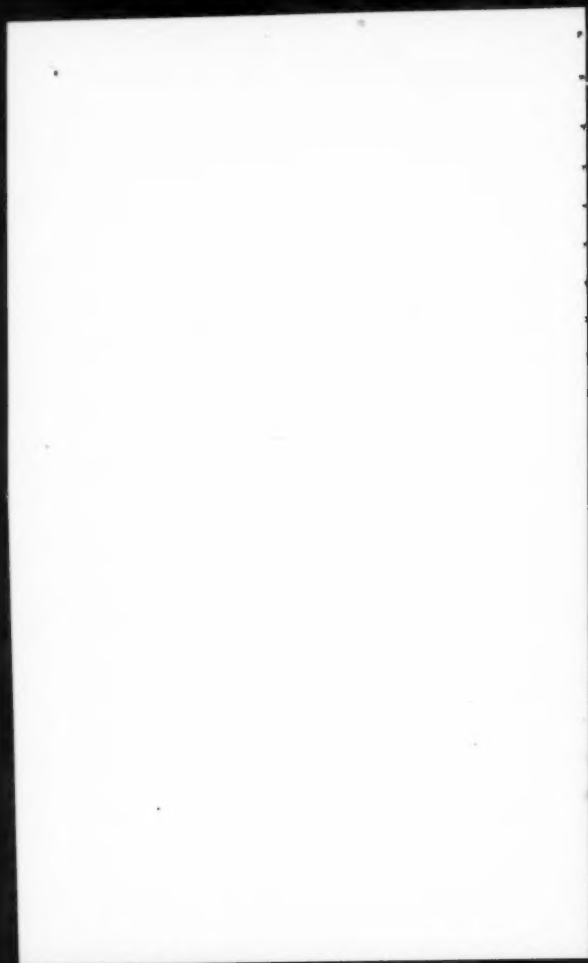
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Mail to Hitchcock Publishing Co., 508 S. Dearborn St., Chicago, Ill.,
or to any advertiser



Hitchcock's Machine Tool Blue Book

Selected
Circulation

25,000
Monthly

JULY, 1929

TWENTY-FOURTH YEAR

COME IN—The Water's Fine

A regular flood of BLUE BOOKS goes out every month, as fast as trains can carry them, East, West, North, South. They cover the entire country—wherever men work in metal.

It is not a ravaging flood, such as some of us have seen. It is a kindly flood, bearing peace and good will. It carries the messages of manufacturers, telling men how to work in metal faster, cheaper, and better.

And the monthly flood of BLUE BOOKS is under thorough control, too, providing a circulation of most careful selection. A lot of money is spent to see that every copy counts, as nearly as it is humanly possible. It is "quantity plus quality."

Yes, it's a kindly flood, under thorough control, covering the industrial plants and other responsible buyers from coast to coast as with a blanket. It furnishes a broad and effective advertising service that is unique, highly specialized and quite a little above the ordinary.

If you make machine tools or other shop equipment, come on in—the water's fine.

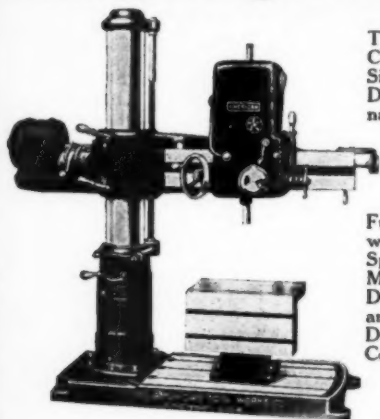
Published By

Hitchcock Publishing Co.

508 S. Dearborn St.,

Chicago, Ill.

For Maintaining Consistent High Production



This shows our
Constant Speed
Simplified Motor
Drive for Alter-
nating Current.

Furnished also
with Adjustable
Speed Simplified
Motor Drive for
Direct Current
and for Belt
Drive thru 4-Step
Cone Pulley.

Power—Speed—Accuracy— *plus* Operating Convenience

all appear in the American Maxi-speed Radial Drill, enabling it to drill and tap holes up to and including 1-inch in diameter faster, better, and cheaper than they have ever been drilled and tapped before.

High production requirements and the necessity for lower production costs of small hole drilling and tapping created a demand for a drill which *only* the "American" has been able to satisfy. That is why it is the choice of the leading automobile manufacturers to *insure* lowest production costs.

Send for fully illustrated folder giving complete details

The American Tool Works Company

Cincinnati, Ohio, U. S. A.

LATHES

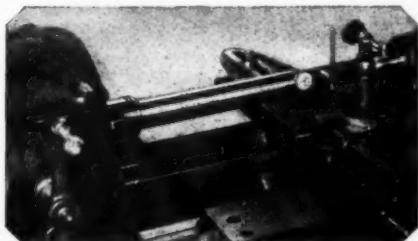
RADIALS

SHAPERS

Accuracy!

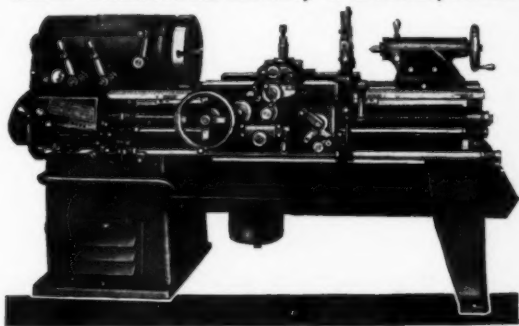
unexcelled—

NEW MODEL REED-PRENTICE Sliding Gear Head Lathe

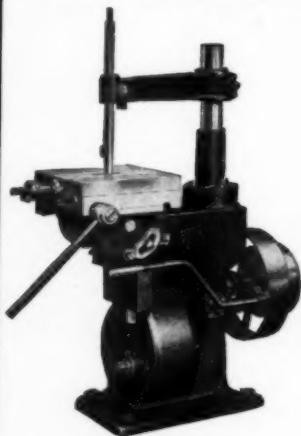


Spindle alignment—12" bar. .0005 up or down, in or out.
Spindle run out at end 12" bar within .001.

REED-PRENTICE CORP., Worcester, Mass.



BAKER KEYSEATERS



Built in
Five Sizes

Designed
for
Miscellaneous
Keyseating
and
Slotting

No. 0 KEYSEATER

Capacity 1" Wide—9" Maximum Stroke

*Exclusive advantages in securing Accuracy and
High Production are:*

1. Draw Stroke Drive.
2. Upper Support for Cutter Bar.
3. Tilting Table (for Taper Keyseats).
4. Simplicity In Operation.

Write for Catalogue

BAKER BROTHERS, INC., Toledo, Ohio

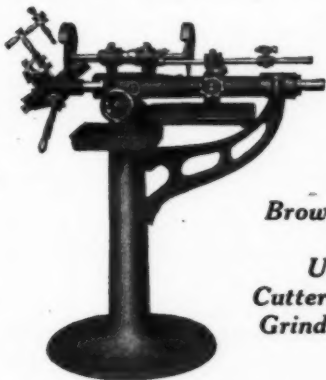
*Builders of Boring, Drilling, Tapping,
Keyseating and Slotting Equipment.*

BROWN & SHARPE Cutter and Tool Grinding Machines

**will increase the output from machines
in your production departments**

Manufacturers everywhere find the No. 2 Cutter and the No. 3 Universal Cutter and Reamer Grinding Machines to be fast and easy to operate. They occupy but little floorspace and their cost is moderate.

The Nos. 2 and 3 are economical investments in lowering tool and cutter costs. Specifications will be sent upon request. Address Dept BH.



*The
Brown & Sharpe
No. 3
Universal
Cutter and Reamer
Grinding Machine*

BROWN & SHARPE

BROWN & SHARPE MFG. CO.



PROVIDENCE, R. I., U. S. A.

Cincinnati Lathes

Photo below shows the work of a Monarch Helical-geared Timkenized lathe. Note smooth finish and absence of gear tooth marks.

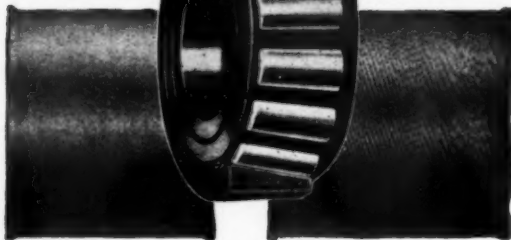


Photo below shows the work of a lathe equipped with spur gears and plain bronze bushings. Note gear tooth marks.

Timken Bearings ~ *The Second Essential for Fast, Smooth Lathe Work*

THE Monarch Timkenized Spindle is mounted in two large precision bearings. In addition, Timken bearings are used for the auxiliary shafts in the headstock, and in the quick-change gear box. Anti-friction bearings save 25% to 30% in power, keep the moving parts of the lathe perfectly rigid and in absolute alignment—giving greater accuracy, higher speed, elimination of chatter and tooth marks, reduced operating cost.

Write for bulletin of Monarch Helical-geared, Timkenized, High-Speed Lathes—showing essentials for fast, smooth lathe work.

The Monarch Machine Tool Co., Sidney, O.
New York Sales Office: 857 Graybar Bldg.

Monarch Lathes

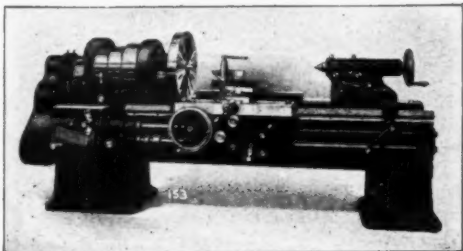


Helical Gears - Timken Bearings
SMOOTHER...QUIETER...MORE POWERFUL



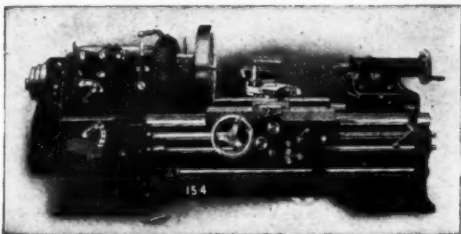
Cincinnati Lathes

earn dividends wherever installed because their exclusive patented conveniences give **quicker operation.**



The reliable—trouble proof service obtained with our lathes depends much on their **simplicity of design**, workmanship and construction.

Supplied in sizes 16" to 32" either Cone type or Geared Head for belt or motor drive.



Send us your blue prints and secure the equipment best for you.

Specialists 25 Years

The Cincinnati Lathe & Tool Co.
Oakley, Cincinnati, Ohio



**11" Gold Seal
Heavy Duty
Precision
Tool Room
Lathe**

Built for heavy cuts and fast work, yet aligned with an accuracy of .0005". Graduations are provided at every point. The hole through the spindle is 1 5/16" diameter, and the lathe takes collets up to 3/8". All bearings are over-size. Made in motor, and single pulley belt-driven models.

**The Small Lathe
you have been looking for**

Powered far beyond its apparent size, generously proportioned and equipped with a completeness unequalled in its field, the 11" Gold Seal Heavy Duty Precision Tool Room Lathe offers the manufacturer a long needed addition to his lathe equipment.

The time saving convenience, precision and versatility of this machine will reduce the cost of producing a wide range of parts—much work can be handled with it that formerly had to be done upon a larger machine.

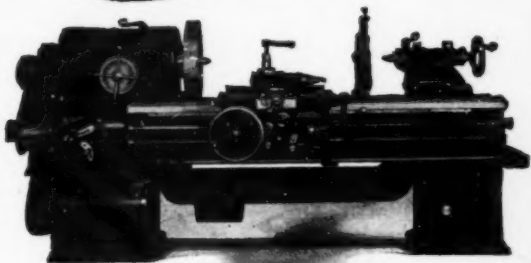
All details sent upon request

THE SEBASTIAN LATHE COMPANY
313 Culvert Street, Cincinnati, Ohio
NEW YORK ADDRESS: Room 372, 50 Church St.

SEBASTIAN LATHES



Monotrol

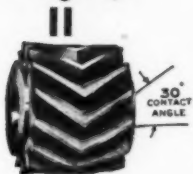
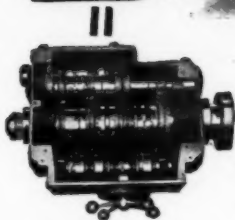


Encourages Production

MONOTROL'S ability to change spindle speeds with one lever saves two-thirds of the time for this operation. It encourages production with simplicity, convenience and speed to meet the requirements of modern industry.

Examine this headstock—note the strong herringbone gears. They are always in mesh and prevent all clashing of gears, stripping of teeth and chatter-marking work.

Whatever the work—if you are interested in greater efficiency, accuracy and long life investigate the Monotrol. Write today for complete data on this better lathe.



The Sidney Machine Tool Co.
SIDNEY, OHIO

A Planer that IS a Planer

in every sense of the word. Constructed ruggedly for fast, accurate work, the Cleveland Openside Planer is a versatile machine that can be used on any planing job. It not only increases your production, but reduces your machining costs on each operation—that is why the Cleveland is the leader in the openside planer field. Let us show you the Cleveland's many features and the remarkable records it has made for others.

The Cleveland Planer Company

Established 1900

3148 Superior Ave.,

Cleveland, Ohio

Over 1100 Installations

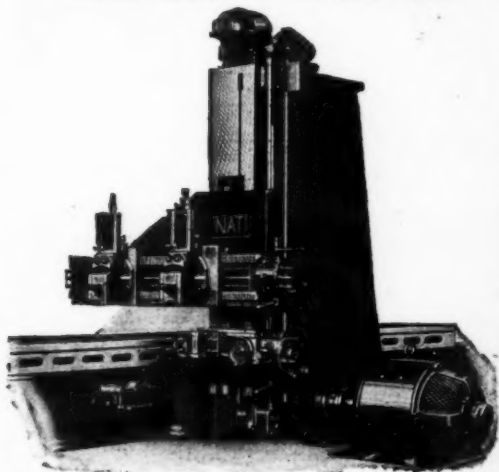
Send
for
Descriptive
Folder
NOW!

26 in.
to
72 in.



The Open Side Planer with the Column Base Cast Integral with Its Closed Top Bed.

CINCINNATI HYPRO OPEN SIDE

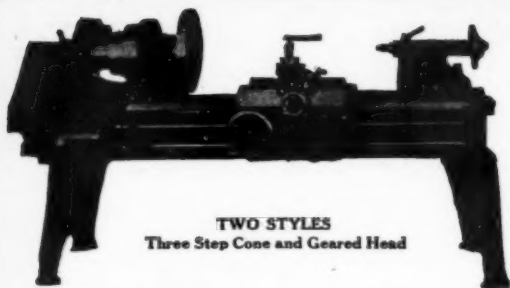


High Production Features:

**Selective Dial Feed
Rail Clamping Device
Instantaneous Rail Lift
Rapid Power Traverse
Forced Lubrication
Combination Steel
Herringbone and Spur Gear Drive
Long Inverted Dovetail Down-Slide**

The Cincinnati Planer Co.

Cincinnati, Ohio



TWO STYLES
Three Step Cone and Geared Head

16"x6' New Design \$525.00
Weight 1900 lbs.

18"x8' New Design \$585.00
Weight 2100 lbs.

3-step cone, double back gear, quick change gear, graduated compound rest, steady rest, lead screw and feed rod, tool post, centers, countershaft and wrenches, ready to run.

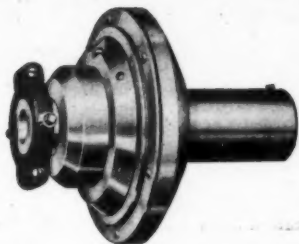
A lathe in the **INEXPENSIVE** class, for your shop equal to, in all respects, lathes of much higher price, having all their features:

Alignment and Precision
Speed in Production
Ease of Operation
Ability on all Work
Low cost of Upkeep
INEXPENSIVE COST to YOU

Made in 16" and 18" swing from 6' to 18' length of bed. Either 3-step cone belt drive or All Geared 9-Speed Drive Head for 2 H. P. Motor.

*Write us for full information and **PRICES***

The Rahn-Larmon Co.
2943 Spring Grove Ave., CINCINNATI, OHIO



***"To buy another clutch
when the Conway Disc
is available under your
specification is to invest
in obsolescence."***

Centripetal action, enclosure,
balance, easy engagement,
instant release, and dragfree
idling are salient features
that co-ordinate to give
splendid and smooth per-
formance. In what other
clutch can they be found?

The Conway Clutch Co.

West 6th Street,

Cincinnati, Ohio

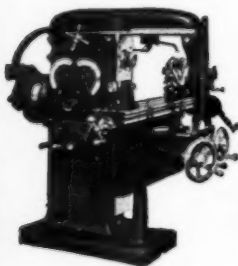
"The Conway Disc is a splendid Clutch."

Save \$700 to \$1000 on a Miller!

WITH these machines a high standard of accurate milling can be maintained. The standardized spindles are forged from high carbon chrome nickel—every gear, shaft, clutch and stud in the driving and feed mechanism is either pack hardened or heat treated.

No 2 Ohio
Universal
Constant Speed
\$ 1775

No 3 Ohio
Plain
Constant Speed
\$ 1880



Consider

these features also:

- (1) Vee flat overarm; (2) complete interchangeability of arbors, chuck, etc.; (3) fully inclosed motor—readily accessible; (4) quick-stop brake; (5) disengaging hand wheels; (6) automatic lubrication; (7) 16 feeds—16 speeds; (8) sensitive control starting lever; (9) pilot wheel for each operation to overarm; (10) gauging strip.

Reasons for Low Prices

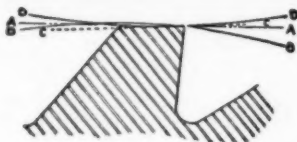
Increased production makes possible manufacturing economies.

While incorporating every feature essential for economical milling—these machines run right handed and do not have reversing mechanism, dual control or frictionless bearings.

WRITE FOR MILLER CATALOG

THE OESTERLEIN MACHINE CO.

CINCINNATI, OHIO



DD represents periphery of grinding wheel, BB circumference of cutter, AA desired clearance as obtained with cup wheel on Ohio Grinder. CC clearance angle obtained using periphery of grinding wheel for clearance.

Properly Ground Tools Last Much Longer

OESTERLEIN-Ohio Grinders are designed especially for tool-room work. They are not production grinders adapted to tool grinding.

The Oesterlein Grinder uses a cup shaped wheel which grinds a straight line clearance—resulting in a stronger cutting edge and greater heel clearance than does the periphery of a plain wheel. The plain wheel “hollow grinds” or undercuts and weakens the cutting edge.

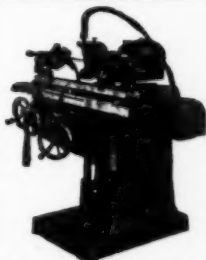
The solid backed cutting edge secured with the Oesterlein Grinder has twice the life of any hollow one. This increased cutter life results in savings that soon pay for the machine.

Send for booklet “E”

This booklet is a complete treatise on the correct grinding of cutting tools. Well worth reading. Write today for your copy.

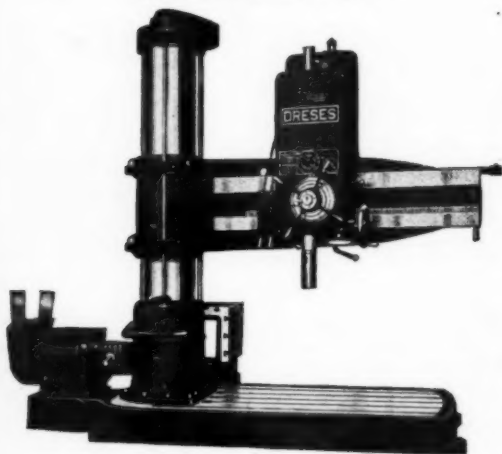
The Oesterlein Machine Company
Cincinnati, Ohio

OESTERLEIN
OHIO
MILLING
GRINDING DRILLING
EQUIPMENT



We have—"IT" The Radial Drill

**You need for your
Special Work**



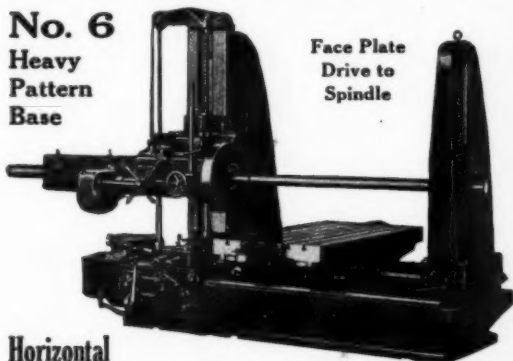
*Write for Prices
and Catalog*

The Dresses Machine Tool Co.
CINCINNATI, OHIO

The New Improved **DEFIANCE**

No. 6
Heavy
Pattern
Base

Face Plate
Drive to
Spindle



Horizontal **Boring, Milling, Drilling and Tapping Machine**

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

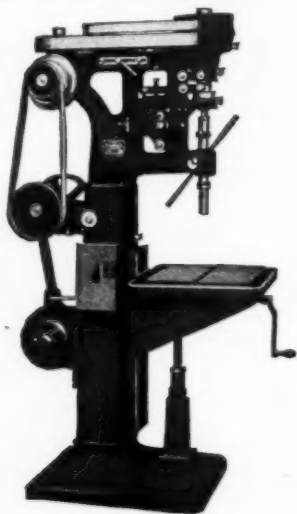
Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works
Defiance, Ohio

**Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery**

HAMMOND

Drilling and Tapping Machines



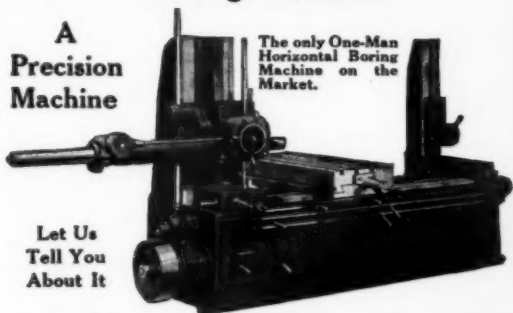
Write for Circular

The Hammond Mfg. Co.
7808 Kinsman Road, Cleveland, Ohio

Lambert Horizontal Boring and Milling Machine

**A
Precision
Machine**

The only One-Man
Horizontal Boring
Machine on the
Market.

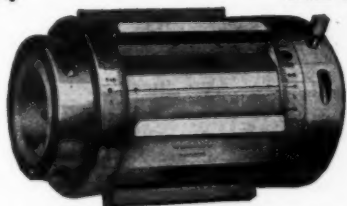


Let Us
Tell You
About It

Lambert Expanding Reamers

Shell style
from 5" up

Machine Reamers
from 1 1/4" up.



3" Tool expands 1", others in proportion to size.

High Speed Blades, every Tool Guaranteed.

. A GREAT TIME SAVER.

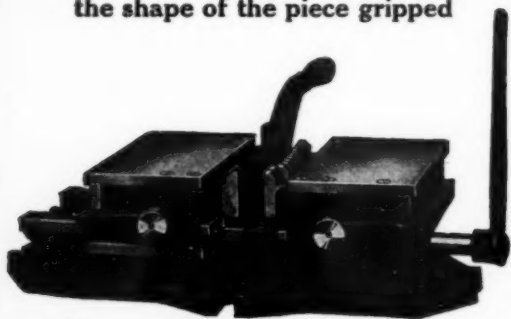
Full Details, Specifications, Price, etc., on Request

Lambert Machine & Engineering Co.

East 55th St. at Euclid Ave., CLEVELAND, OHIO

What You've Been Looking For

A vise with jaws that assume
the shape of the piece gripped



Berjo

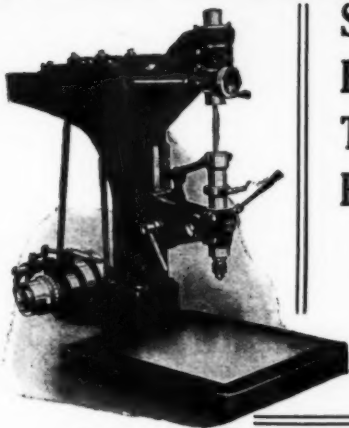
Machine and Bench Vises

Berjo vises have multiple compensating jaws which hold *regular* or *irregular* shaped parts positively and securely. The principle

is simple. A practical mechanical arrangement back of the jaws allows them to follow the contour of the work. Two main jaws, one fixed, one movable, hold the segmented compensating jaws. Berjo vises are suitable for all classes of work, but particularly adaptable to the tool room and the shop where a number of variously shaped pieces are going through.

Manufactured by the makers of Avey Drilling Equipment.

The Avey Drilling Machine Co.
CINCINNATI



**Speed
Eliminates
Twist Drill
Breakage.**

WHY ?

**THE
SPEED KING**

Avey

**No.
 $\frac{1}{2}$**

**SPEED
12,000
R. P. M.**

*Ask for full
Information*

A fine twist drill will only stand so much pressure with resistance until it snaps.

Put enough speed behind that little tool and it cuts so fast that resistance disappears and it's just like cutting butter.

It Pays to Specialize

**The Avey Drilling Machine Co
CINCINNATI, OHIO**

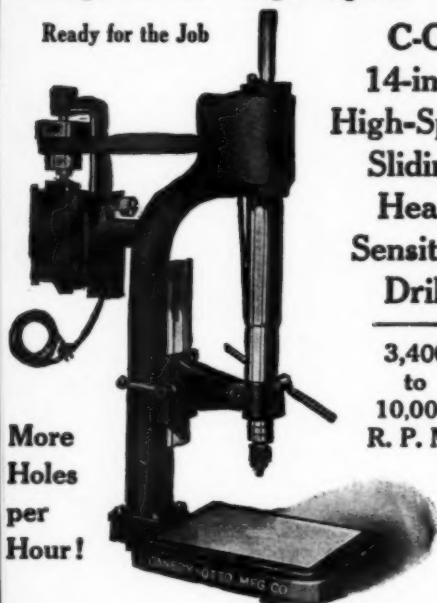
Designed for High Speed Work

Ready for the Job

C-O
14-inch
High-Speed
Sliding
Head
Sensitive
Drill

3,400
to
10,000
R. P. M.

More
Holes
per
Hour!



Total height, 41".
Vertical adjustment of head, 7½".
Diameter of spindle, ¾".
Travel of spindle, 3¼".
Maximum distance of bottom of chuck
to base table, 10¾".
Size of base table, 9½" x 12½".

Speed of spindle, 3,400-5,600-10,000.
Largest size of drill, 5/16".
Distance from column to center of sp., 7¼".
Size of sp. pulley, 1½"-2¼"-3" x 1¼" face.
Bench space, 15" x 20".
Net weight, 180 pounds.
Crated weight, 220 pounds.

Complete Information gladly furnished

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

New York Branch
407 Broome St.

Complete stock
carried at branches

San Francisco Branch
955 Folsom St.

The Improved Canedy-Otto No. 29

Ready for the Job



**Completely
Motorized—
Also Furnished
Belt Driven**

The Improved Canedy-Otto Sensitive Bench Drill comes complete with toggle switch, cord, socket, 1½" endless leather belt, and chuck. The motor is adjusted on a sliding base that maintains the proper tension on the belt at all times, and cuts lost motion and vibration to the minimum. Now equipped with a 3-step cone pulley which gives three spindle speeds of 720, 1430 and 3000 R. P. M. Complete information, with close price, upon request.

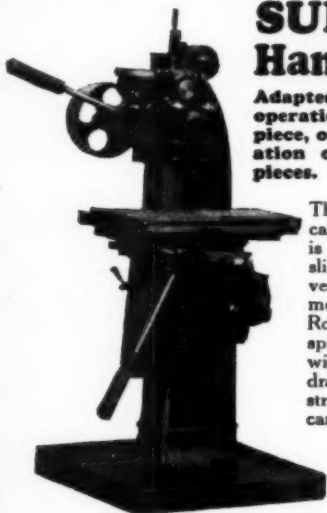
Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois
New York Branch **Complete stock** **San Francisco Branch**
407 Broome St. **carried at branches** **955 Folsom St.**

Two-Spindle Vertical Attachment for the

SUPERIOR Hand Miller

Adapted to perform two operations on the same piece, or a different operation on two different pieces.



This two-spindle vertical milling attachment is carried on the main sliding head, and the vertical spindles are mounted on Timken Roller Bearings. The spindles are provided with spring chucks and draw-in bolts so that straight shank end mills can be used.

Accuracy, Versatility Facilitate Production

These attachments are running continuously, day and night, in many plants and are performing successfully the operations on a variety of pieces. The very best of materials and workmanship insures *long life* together with *perfect alignment* and *ease of operation*.

Write Us Today for Descriptive Literature and Price

We are also Designers and Manufacturers of Special Machinery, Tools, Dies, etc., as well as of Experimental and Model Work.

Superior Machine & Engineering Co.

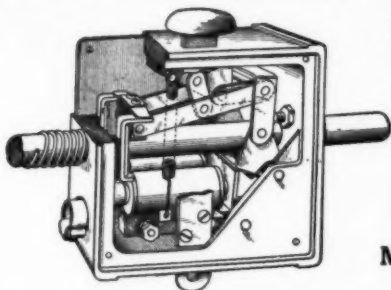
1920 Ferry Park

MI

MI

Detroit, Mich.

SIMPLEX SAFETY STOPS



Simple
to
Install

Easy
to
Maintain

Protect Your Automatic Machines Against Delay or Damage from—

Any Irregularity
Oversize
Undersize
Breakage

End of Work
Jams
Mis-feeds
Changed Tension—etc., etc.

ONE SIMPLEX SAFETY STOP MOTION will protect any number of danger points at the cost of protecting one with a mechanical stop. No machine is too big—none too small—and there is absolutely no interference with the normal operation of the machine. Operates from lighting circuit—or you can use batteries, generators or transformers.

Our customers—both manufacturers and users of automatic machines of practically every type—report increases in production of from 15 to 100% after installing a SIMPLEX. Also a decided improvement in the quality of work turned out.

Write for the Descriptive Booklet—showing sample wiring diagrams and installation lay-outs

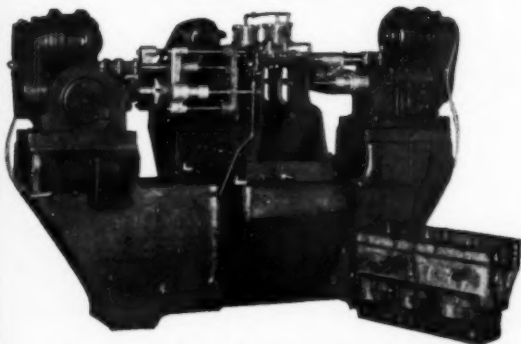
The Atlantic Company

Box 133, Sta. B.,

Brooklyn, N. Y.

BRADFORD

Drilling Machines



**Let Our Engineers Help You
Solve Your Drilling Problems**

BRADFORD Drilling Machines are made up with any number of spindles for drilling or tapping, or in combination for any particular job. The very best material and workmanship is employed to meet present day high production requirements.

The Three-Way Machine shown above reams seven water jacket holes to .943 dia. in cast iron cylinder block in floor to floor time 30 seconds per piece—

*Send Us Your Blue Prints or Samples
for Production Estimate*

The Bradford Machine Tool Co.

Precision Lathe Builders Since 1840

657-671 Evans Street,

Cincinnati, Ohio

Grand Rapids No. 1½ Universal Cutter and Tool Grinder



Newly designed to meet the demand for a high grade machine of medium capacity at a moderate price. It has the sterling qualities that are built into all Grand Rapids Grinders, including exceptional ease of handling—and it sharpens tools right.

Our "Universal Cutter and Tool Grinder" folder, which is yours for the asking, pictures this modern machine in the following grinding operations:—face mill, form cutter, angle cutter, surface, gear cutter, reamer, end mill, spiral and plain milling cutter, internal and cylindrical. It also illustrates Grand Rapids No. 2 Universal Cutter, Tool and Drill Grinder, and Nos. 3, 4 and 5 Universal Cutter and Tool Grinders.

Don't fail to write for folder; it's interesting

Gallmeyer & Livingston Co.

342 Straight Ave., S. W.,

Grand Rapids, Mich.

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT



Threading at 3000 R. P. M.

These rods are being threaded with a No. 8-32 thread 5-16" long, at an average production of 1400 pieces per hour on our Standard High Speed Tapping Machine.



*How about your
threaded work ?*

Leland-Gifford Company, - Worchester, Mass., U.S.A.

BRANCHES

BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER

AGENTS

Hendrie & Balhoff
F. E. Satterloe Company
Herberts-Moore Machinery Co.,
F. F. Barber Machinery Co.

Denver
Minneapolis
San Francisco
Toronto

LELAND - GIFFORD

**Taylor & Fenn Belt Driven
No. 12 Spring Press**



**UNIFORM BLOW
SPRING PRESSES**

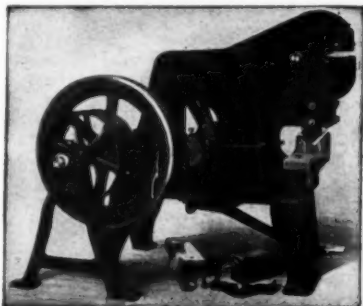
**Are made in
three sizes,
with either
single or
double action**

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

**The Taylor & Fenn Co.
Hartford, Conn., U. S. A.**

BELOIT



Combined Power Punch and Shear

Built in seven sizes. Nos. 51, 52, 53, 54, 55, 55½ and 56

Direct connected motor or belt drive

THE best all-around punch and shear in a combined machine of moderate cost. Really three machines in one, for it combines the single end punch with the alligator shear for flat bars, and the round cutters for round bars—and all for the price of one single end machine!

HEAVERY, substantial, amply back geared to require the minimum amount of power, compact, easy to operate. Can be equipped with angle shearing attachment, angle notching and coping attachments if desired.

Write Today for Catalog and Prices

Hendley & Whittemore Co.

100 S. State St., BELOIT, WIS.

PUNCHES—SHEARS—BENDING ROLLS



Patented

the **WELLS** metal band saw

Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

Features:

Self contained and portable if desired—rapid cutting with extreme accuracy—long life blades, low blade expense. A wide range of usefulness—economical operation.

The WELLS SAW cuts soft and hard, ferrous and non-ferrous metals—thick and thin sections—pipe, **tubing**, strips, etc.

No change of blade or speed—cuts high carbon steel then soft brass rapidly and accurately.

Hundreds of duplicate pieces cut with a variation of less than .004".

Saves stock—width of cut less than $\frac{3}{64}$ "—blade .025" thick rigidly supported in six ball bearings.

Durable construction for hard service—strength without excess weight—ball bearing.

A Saw for Production, Maintenance and General Service

We wish you to have descriptive literature—your name and address please—today? Saws will be placed on trial.

Metal Saw Division

WELLS MANUFACTURING CORP.

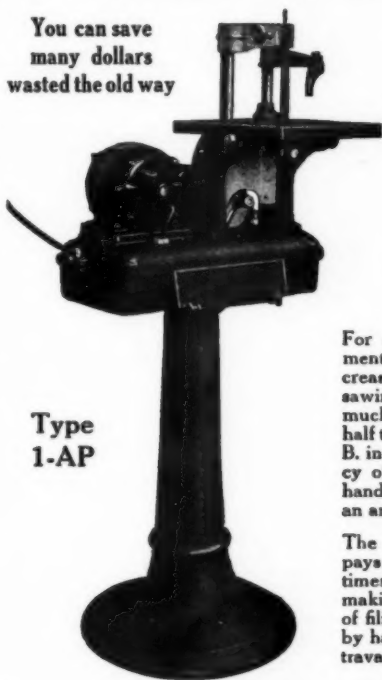
Three Rivers, Michigan

Exclusive territory being allotted—representatives and dealers interested, please write.

Expensive Hand Filing and Sawing Are Economically Eliminated

**You can save
many dollars
wasted the old way**

**with a
J. & B.
Filing
and
Sawing
Machine**



**Type
1-AP**

For a small investment you can increase your filing and sawing operations as much as two and a half times. The J. & B. increases accuracy of work, in the hands of both veteran and apprentice.

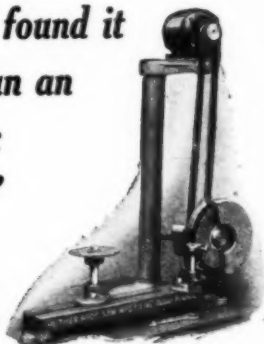
The J. & B. soon pays for itself many times over — thus making the old method of filing and sawing by hand a rank extravagance.

Write for complete details NOW!

**LaPorte Machine & Tool Co., Inc.
LaPorte, Indiana**

***“We have found it
faster than an
automatic
machine”***

Patent Pending



We offer the No. 2 Metal Cutting Saw Sharpener as a universal saw tooth grinder for shops and plants where the expense of installing an automatic unit is not warranted. It is so simple in operation and set up that with an average operator we have found it faster than an automatic machine.

It handles coarse and fine pitch metal cutting saws, inserted tooth and solid milling saws alternate bevel and straight teeth with equal efficiency. Its range with or without index is from 6" to 40" dia. *Furnished with or without motor drive.*

Huther Bros. Saw Mfg. Co., Inc.
Rochester, N. Y., U. S. A.

OUR MACHINES **SALVAGE**

YOUR HARD TEMPERED
METAL CUTTING

Band Saws Hack Saws

**MILLING, SLITTING AND
SCREW SLOTTING SAWS**

IT COSTS **2¢** To Sharpen **5¢** A Band or
A Hack Saw Circular

MAIL TO US

two saws and we will resharpen them for you
FREE OF CHARGE

REDUCE YOUR SAW PURCHASES

90%

SAVE TIME AND SAVE MONEY

Write for Catalog

THE WARDWELL MFG. CO.

Makers of automatic machines for sharpening—Hack Saws, Hard
Tempered Band Saws, Milling, Slitting and Screw
Slotting Saws and all Woodworking Saws.

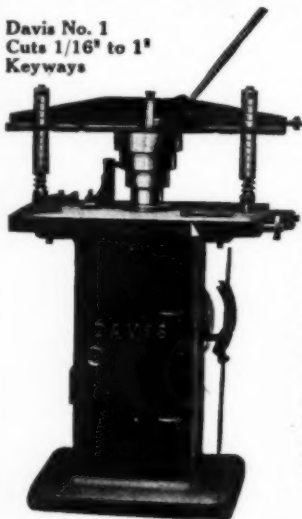
Manufacturers of the largest line of Saw Filers made in U. S. A.

106 Hamilton Ave.,

Cleveland, Ohio

Versatile—

Davis No. 1
Cuts $1/16"$ to $1"$
Keyways



The Davis Key- Seater

equipped to handle any keyseating job in the shop up to $1"$ wide. If you want a machine to turn out standard parts in quantity—accurately and speedily—the DAVIS will do it. If you want a machine to take care of the average jobs—the DAVIS will do that too. Made in two sizes.

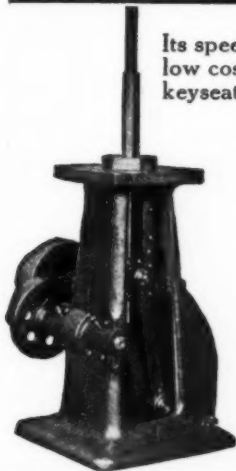
DAVIS KEYSEATERS are wide range, accurate machines with ample power to handle every keyseating job from the smallest to the large gears, pulleys, etc. Capacity in steel keyseats $1/16"$ to $1"$ wide (also taper keyways) on hubs up to $12"$. Davis cutters for Davis Keyseaters in sizes from $1/16"$ to $1"$ in 16ths and some 32nds.

*Write for complete illustrated description,
including interesting table of cutting time*

Davis Keyseater Company

255½ Mill St., Rochester, N. Y., U. S. A.

Cut Your Costs with a **Catlin Keyseater**



Its speed, accuracy, long life, and low cost of upkeep have cut the keyseating costs for—

**U. S. Gov't Shops,
Machine Shops,
Automobile Plants,
Navy Yards, and
Factories—both
Foreign and Domestic**

***Why Not Let it
CUT YOURS ?***

Illustration shows the Catlin No. 1 Keyseater which has a stroke adjustable to 13", cuts keyseats from $\frac{1}{16}$ " to $1\frac{1}{2}$ ", and is belt driven with 3 step cone pulley. We make keyseaters (belt or motor driven) for all sizes and capacities.

Send for information and actual shop records

Chattanooga Machinery Company
2401 Bennet Ave., Chattanooga, Tenn.



MACHINE TOOL AND GENERAL
PURPOSE PUMP



VOLUME PUMPS



MOTOR DRIVEN UNITS
 $\frac{1}{2}$ to 5 H. P. 5 to 75 G. P. M.

38 **FULFLO** delivers coolant in volumes which promote efficiency in cutting tools.

The full, copious flow from the Fulflo is needed to make the best tool, with the best coolant, most effective,

FULFLO does not clog, therefore it always

works. It's the trouble proof pump.

No machines stopped to unclog pump. All the chips you can get into it pass through without harm.

FULFLO has longest life because its only pumping part does not wear.

MANUFACTURED BY

FULFLO SPECIALTIES CO., BLANCHESTER, OHIO

GUSHER PUMPS

**Withstand the
Constant Wear
and Tear of
TIME**



Model T-L-O

Equipped with $\frac{1}{4}$ h. p. motor, has $\frac{3}{4}$ " inlet and is set vertically outside of pan. Delivers 18 gal. 3' high; 13 gal. 6'; 10 gal. 9'; 8 gal. 12'; 3 gal. 20'.

Model T-L is identical in capacity and equipment save that it is immersed in the reservoir and is able to pump over 20' high through $\frac{1}{2}$ " discharge with 10 lb. pressure. Ideal for deep hole drilling or boring.

GUSHER PUMPS are built to outlast the machines they serve. To accomplish this the makers have eliminated all packing nuts, foot and relief valves, and the necessity for priming as well. The deteriorating effects of friction are banished through the use of ball bearings, and the ball bearings are protected against the effects of the lubricant by the obtaining of perfect hydrostatic balance.

Dirt—Grit—Chips—

These ancient enemies of all lubricating systems, in spite of their menacing threats, are powerless to effect the sturdy GUSHER Pumps. For they are all constructed in such a way that foreign substances pass through without injuring the mechanism in the least.

Gusher Lubricant Pumps

are made in many styles and sizes, of all desirable capacities, with individual motor or belt drive. Can be furnished, if desired, to set outside reservoir and connect by piping.

*Write for complete Catalog of "GUSHER PUMPS"
with facilities from 12 to 75 gallons per minute.*

The Ruthman Machinery Co.

528-534 E. Front St.,

Cincinnati, Ohio

**Now you can increase your production
and drill more accurate holes with**



**The NEW
VICTOR
Super-Drill
FIVE**

**Changes of speed with-
out stopping the drill or
touching a belt !!**

**Cut
Your
Drilling
Costs
50%**

VERSATILITY is the key-note of the VICTOR Bench Super-Drill. The exclusive patented adjustable pulley permits an instant change from 1600 r. p. m. to 2,200, 3,000, 3,800 or 4,250 r. p. m. without stopping the machine or touching a belt. Think of the time saving.

Ten Big Features

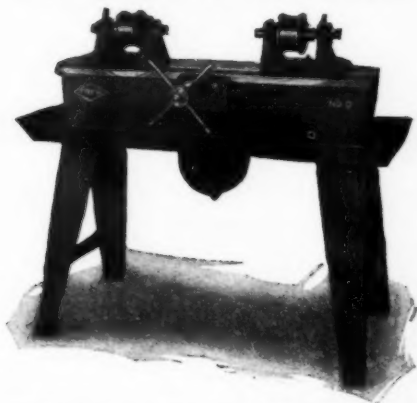
(1) Ball bearings in ALL revolving parts and end thrust; (2) Wonder pulley chamber and speed lever to regulate r. p. m.; (3) Standard Jacobs or Ettco chuck; (4) Spindle travel 2"; (5) Drill table absolutely level; (6) Positive spring belt lock; (7) Self adjusting belt; (8) $\frac{1}{4}$ h. p. motor, a. c. or d. c.; (9) Fully equipped with belt, switch, cord and plug; (10) Portable—weight only 65 lbs.

Write for Complete Description and Low Price

The Thompson Manufacturing Co., Inc.

60 India St., Boston, Mass.

FREW No. 0 Duplex Horizontal Drill



For Speedy, Accurate Production

THIS machine is designed for simultaneously machining work from opposite directions on the same axis, the work being held in suitable fixtures mounted on the bed. Some of the operations include drilling, counterboring, turning and hollow milling. Facing can be done in practically half the time consumed in single spindle operations, giving an alignment that the accuracy of the machine provides for.

Timken tapered roller bearings or ball bearings; stops which regulate the depth to which tool goes; felt wipers for clearing chips and several methods of providing motion to the heads are some of the outstanding features of the No. 0 Duplex Horizontal Drill.

Write for the Descriptive Bulletin

THE FREW MACHINE CO.
124 West Venango St., PHILADELPHIA, PA.

*We also manufacture: Tapping Machines, Profiling Machines,
Cam Milling Machines, Wood Working and Special Machines.*

The KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses
For
Filing—Grinding—Polishing, Etc.

Made in various sizes and types
to meet every need.

Speeds 875 to 10,500 R. P. M.

Non-Heating Shafts, Ball Bearing
Handpieces.

*A Full Assortment of Accessories for
Die—Tool—Mould—Metal Pattern
and Corebox Work.*

Complete line of accessories



Rotary Files—27 Shapes



Sanding Drums



Wire Brushes

*Write today for list of users
in your line of manufacture*

**Keller Mechanical
Engineering Corp.**



58A Washington St.
BROOKLYN, N. Y.

*Made by the builders of the Keller
Automatic Die Cutting Machine*



STANDARD

Right Speed Buffers



G. E. 40° Ball Bearing Motors and push button control. Four S. K. F. Ball Bearings. Buffing Spindle, nickel steel. Speed 2000 to 3000.

Made in four sizes:
3—5—7½—10 H. P.

Angle Plate Grinders, Electric Drills, Grinding, Polishing and Buffing Machines in various types and sizes.

Established 1912

Write for Late Catalog

The Standard Electrical Tool Co.
1938 W. 8th St., Cincinnati, Ohio

Illinois Plain and Surface Grinder



No. 10

This machine has been designed to meet the popular demand for those wanting a general purpose grinder. One end is arranged for surface grinding and the other end for tool or plain grinding.

Special Features

Base: Box type construction, with liberal bearing space for knee, insuring accuracy.

Knee: Supported by elevating screw having ball thrust bearing. Hand wheel graduated in thousandths, long bearing on column.

Spindle: Made of High Carbon Steel, heat treated, runs in 4 Timken tapered roller bearings, adjustment collars to each bearing. Bronze bearings furnished, if desired.

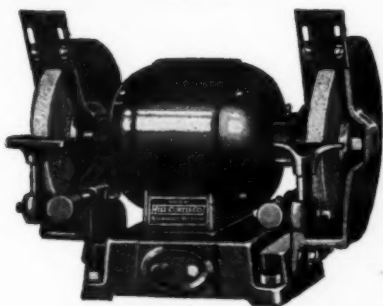
Countershaft: Ball bearing with tight and loose pulley and belt shifting device.

Lubrication: Alemite system for spindle and countershaft.

Write for Complete Specifications and Prices

Illinois Machine & Mfg. Co.
LaSalle, Illinois

NEW



6"-8"-10"
Bench and Floor
Type

ELECTRIC GRINDERS by **HILL-CURTIS**

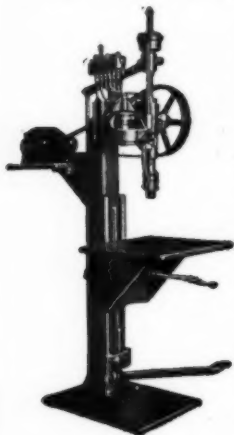
Ball Bearing — High Carbon Steel Spindle — two pole,
Underwriter's Approved Switch—approved and adjustable
Wheel Guard—enclosed, over-size, and smooth running
Motor. A high grade Grinder, built to give continuous
service for that tool grinding or light production job.

Write for descriptive literature

HILL-CURTIS Co.
POLISHING AND GRINDING MACHINERY
KALAMAZOO MICHIGAN

Our NEW No. 2 Heavy Duty Automatic MAGAZINE FEED Screw Driving Machine

THIS machine, like its famous predecessors, was designed to help you lower your screw driving costs. A medium sized, heavy duty type, it will drive without change or adjustment, any three consecutive sizes of wood or machine screws from No. 6 to No. 14 inclusive, and up to 1 $\frac{3}{4}$ " long. Quickly interchangeable sets of parts can be furnished to increase range if so desired—no change is necessary for different length screws.



Its greater depth of throat allows screws to be driven to the center of a 48" circle in work not over 6" high.

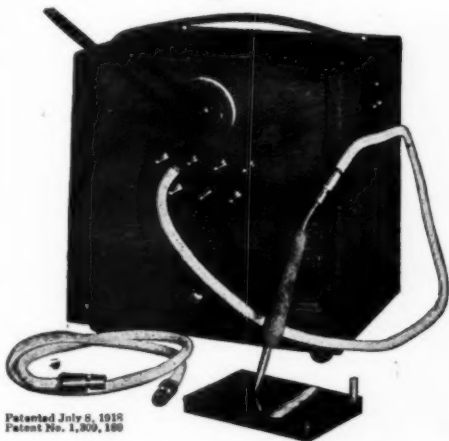
The NEW magazine feed Reynolds is especially adapted for high speed production and long uninterrupted service, and incorporates a number of improvements and refinements, chief of which is the Chuck with Equalizing Jaws.

Tell us the dimensions overall of your work, the length and gauge of screws used, and we'll send facts and figures showing how the REYNOLDS will save YOU money.

The Reynolds Machine Company
Dept. H. H., Massillon, Ohio

Etchograph

Trade Mark



Patented July 8, 1918
Patent No. 1,309,180

Six Stages of Heat

Enable the user of the ETCHOGRAPH to obtain six variations in the size of marking—an advantage no other machine can offer. Ideal for writing or marking on iron, steel or steelite. No fuss—easy to operate. Just plug in at the nearest lamp socket and write as you would with a pencil. No acids, no elaborate preparations—thereby affording an 80% saving in time alone. Full information gladly sent upon request.

Write for descriptive folder, stating power available.

William Brewster Company
50 Church St., New York

Strong, Durable, Dependable Hack Saws for General Work, and Low In Price



Marvel No. 1 Hack Saw

Capacity 4"x4"

A splendid, efficient
saw for use where large
capacity is not essential.
Order now.



MARVEL No. 2 hack saw with swivel vise that swivels
both ways, right or left, and has adjustable stroke.

CAPACITY: { 6"x6" on long stroke.
8"x8" on short stroke.

The ideal saw for all around general work. Place your order
with us today. Both these saws also furnished motor driven.

Ask about Marvel High-Speed-Edge Hack Saw Blades

Armstrong-Blum Mfg. Co.

341 N. Francisco Ave.,

CHICAGO, ILL.

The K-O Vise Clamp

New—Practical—Tested



Has no equal for variety of purposes, or uses, in the tool room or machine shop.

**Quick Acting
Simple—Accurate**

The Indispensable Tool

The K-O Vise-Clamp is a combination of a Drill Press Vise, Toolmakers' Clamps, V Blocks, Drill Jig and Angle Plate. Illustration shows small round clamped in "V" groove, for drilling through its diameter. The round, when clamped in the groove "stays put." With the ordinary vise a parallel would be necessary—with the K-O none is required. Two sizes for fast, accurate work of great variety, in all positions.

The K-O Adjustable U-Clamp

The Old Style U-Clamp with NEW Adjustable Feature. Quick—Positive—Dependable—Guaranteed. Costs no more.

No Blocking Required



Rear of clamp is easily and quickly adjusted to level of work to be clamped by merely turning the ratchet, one way or the other. Step elevations graduated by 32nds of an inch.

Our Vises and Clamps are made in various sizes—Send for Catalog.

Cayo Manufacturing Co.

Benton Harbor, Mich.

In addition to the above, we manufacture Adjustable Shop Stools and Adjustable Shop Stands to hold parts to be run through Punch Presses.

Luma
ELECTRIC EQUIPMENT CO.
TOLEDO, OHIO

*Guaranteed
fool-proof
and durable.*

*Used on A. C.
light circuit.*



*View of Etching Pencil
Marking and Demagnetizing
in same operation.*

Luma Combination Electric Etching and Demagnetizing Instrument

Easy to use as a lead pencil

A time and labor saving tool that functions equally well permanently marking expensive high speed steel tools and demagnetizing large or small ones.

Always instantly ready without fuss or muss

Operation symbols plainly and permanently marked on tools saves time and spoiled work and speeds production.

Luma Electric Equipment Co.

P. O. Box No. 132 Main Office,

Dept. H.

TOLEDO, OHIO

Winterhoff Portable Electric Grinders

Equipped with Timken Tapered Roller Bearings



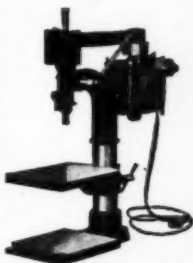
**No. 1-B
8" & 10" Grinder**

Complete as illustrated, with two 8 inch grinding wheels, two wheel guards, two tool rests, cord with detachable plug and switch mounted directly on motor. Motor is $\frac{1}{2}$ h. p. repulsion induction, 110-220 volts. A sturdy, accurate machine that stands up under any usage. Other models include the No. 2-B, a Combination Tool and Disc Grinder, and the No. 3-B, a Double-End Disc Grinder.

Send for Grinder Circular and Low Prices

Portable Electric High Speed Sensitive Bench Drill

Equipped with $\frac{1}{4}$ h. p. motor, two step cone pulley giving speeds of 1100 and 2300 r. p. m., horizontal drive gives full power to the $1\frac{1}{4}$ " endless belt furnished with machine. Driven cone has bearing support at each end; all parts accurately machined and interchangeable. *Positively the greatest value* ever offered in a machine of this kind. Furnished with square machined base at same price.



We also make a line of portable, electric Saws and Sanders

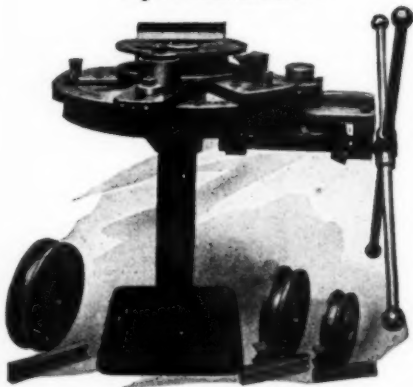
No. 0 JUNIOR DRILL
 $10\frac{1}{2}$ " Swing, 0 to $\frac{3}{8}$ " Capacity

Detailed Information Sent Upon Request

Winterhoff Tool & Machine Co.
109 South Elkhart Ave., Elkhart, Ind.

A New Horizontal Pipe Bender

By *PEDRICK*



Universal satisfaction for the past 20 years has been the keynote of our success with bending pipe.

Recently we have made *two* radical departures, viz., the horizontal table and the improved bending principle, which offers decided advantages in *Time-saving, Convenience* and *Superior Work*.

Iron, steel, galvanized and copper pipe are bent cold and unloaded on the radii of the rolls. For 2" and under.

We have a Bulletin awaiting for you.

SEND FOR IT NOW.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Manufacturers of Cylinder Boring Bars, Portable Millers,
Crank Pin Turning Machines, etc.

Type RF-M4 Machine



Strand

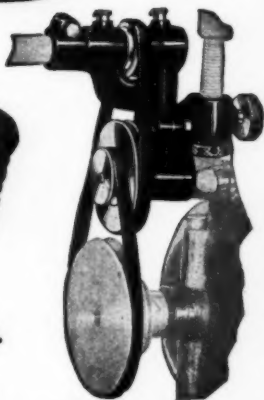
Capacity— $\frac{1}{4}$ H.P.

For

**Rotary Filing
Grinding
And
Polishing**

10,000 R. P. M. Attachment
Furnished Extra
when Required. See
Illustration.

Attachments



N. A. STRAND & CO.

Manufacturers

5001 No. Lincoln Street
CHICAGO

PATENT APPLIED FOR

THE

BULL DOG

**1/2"
Heavy
Duty**

\$48



**Universal
Current**

**Let's Send You 16 Reasons
why BULL DOG DRILLS
Are the BEST**

**Week's
FREE Trial**

*If your dealer can't supply you, we'll
gladly send you a biting BULL DOG
Drill for a week's rough-house test.*

National Electric Products Co.
Dept. H. 148 Baxter St., New York, N. Y.

**When it
Comes To
Rubbing
Filler—Try**



The
Nedco

**Sanding and Polishing
Machine**

**It Will Save You Time and Money
and Do A Better Job**



The NEDCO is built for strenuous service, and uses any standard 9 $\frac{1}{4}$ " abrasive disc. Weight 12 lbs.

Equipped with $\frac{1}{4}$ HP universal motor either 110 or 220 volts—working speeds
Model "N" 1750 R. P. M.
Model "S" 850 R. P. M.

Price \$85.00 F. O. B. NATICK

Write for Descriptive Circular

**THE NEDCO
COMPANY**

**Dept. H
NATICK, MASS.**



A
SMALL
Machine
with a
LARGE
Capacity
for
WORK



7 in.
Shaper
Stroke

3½ in.
Slotter
Stroke

A Winning Combination

The RHODES

Shaper and Slotter

A FEW TURNS of a wrench converts the RHODES into either an efficient shaper or a fast, accurate slotter. Requiring little shop space, it is always ready to handle work requiring the machining of complicated contours to close limits with speed and efficiency.

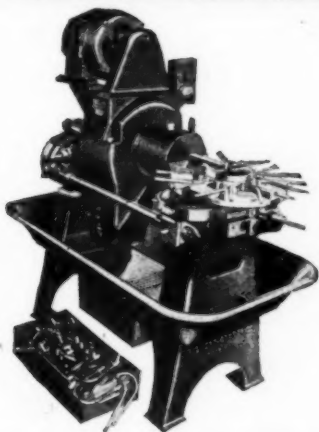
IT WILL do keyseating, shaping, slotting, die making and intricate work with *only one set-up*, and, within its range, will exceed the capacities of larger and more expensive single operation machines at a great saving in costs.

WRITE FOR CATALOG H22

The Rhodes Mfg. Company
944 Park Road, Hartford, Conn.

SHAPERS—RHODES—SLOTTERS

"Thread It Separately"



**Save Your
High-Priced
Automatics
for their
regular
work—Do
Your
Threading
on the
Single
Purpose**

RICKERT-SHAFER Automatic Threading Machine

HIGH-PRICED automatics should be kept on their own type of work if you want them to pay profits. Don't saddle them down with threading—the longest operation on most jobs. Instead, use R-S Second Operation Machines—simple, low-priced and versatile—and watch the increase in production and decrease in costs!

THE R-S Threading Machine is the only automatic threader which meets the exacting demands of accuracy among automobile manufacturers. It will do practically every job of threading, from the simplest to the most complicated. Combination tools can be supplied so that chamfering, reaming, facing, etc., can be done simultaneously with the threading and with but one chucking.

Write for Descriptive Folder and Prices

RICKERT-SHAFER CO., Erie, Pa.

Champion Tool Holders

SAVE

Expensive Tool Steel



Patented

CHAMPION
Tool Holders are made of drop-forged steel, thoroughly case-hardened, and are equipped with an unbreakable "Mac-it" set screw.



Patented

Champion Boring Tool

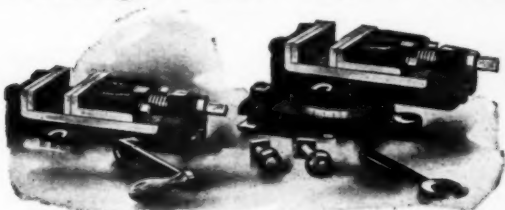
This tool is indispensable for inside threading and boring. Takes any length of cutter, which may be used down to short lengths. Cutters, drills, reamers, taps and many other tools can be used in this Holder.

Let us tell you more about our Turning Tools, Boring Tools, Planer Tools, Cutting-Off Tools, Threading Tools, Grooving Tools and the Champion Drill Holder.

Write for New Catalog and Price List

The Western Tool & Mfg. Co.
Springfield, Ohio

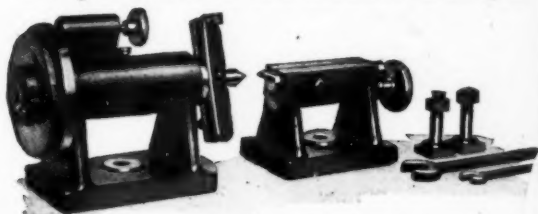
"Straight Line" Milling Vises



**Swivels 180° Either in a Horizontal or Vertical Plane.
STRONG — DURABLE — ACCURATE
Made in Four Sizes**

Ordered repeatedly by leading machine tool users for accurate heavy duty milling. Interchangeable parts.

Adjustable Dial Index Center



With work dogged between centers, and latch pin in, the dial can be turned to bring work in position where wanted as to relation with machine cutter or emery wheel, then bound to start indexing from such setting. Regular dial is drilled for three and four stations. Can be used for re-cutting or grinding flutes in taps and reamers or teeth in cutters.

Also Manufacturers Of

Double end horizontal drills, milling machines and attachments, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw slotters, hand lathes, collet chucks, oval chucks, rotary tables, hex-square milling fixtures.

WRITE FOR CATALOG

JOHN B. STEVENS INC.

25 Cleveland Place,

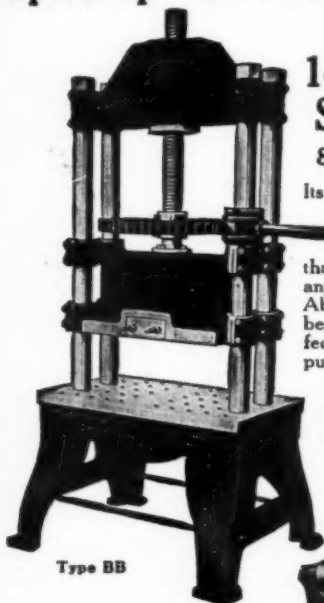
NEW YORK CITY

Speed Up Your Tool Room Work

With This

1-Man 4-Post Screw Press

80 tons pressure



Type BB

Its superior convenience makes it possible for one man to fit more dies than two men can do on any other type of machine. Abundant room between bed and ram insure perfect alignment of the punch and die. Each of the 4 sizes is rigid, and powerful enough to shear in any die within its dimensions.

Table 20"x36"

Also 3 smaller sizes

Surface Grinder

Is accurate and powerful—runs without chatter. Both feeds have graduated dials. Equipped with latest improvements.

Details and price on request

**JARECKI MACHINE
AND TOOL CO.**

Department A

GRAND RAPIDS,

MICHIGAN



KRW Hydraulic and Sensitive ARBOR PRESS

**Gives All - Around
Efficiency at very
Low Cost**

THE latest improved combination KRW Hydraulic and Sensitive Arbor Press includes many improvements not found in any other press, at any price.

35 TONS CAPACITY

Hydraulic pressure easily operated by one hand controls movement of ram to one-thousandth of an inch movement. Automatic air vent and pinion brake holds ram at any height when not in use.

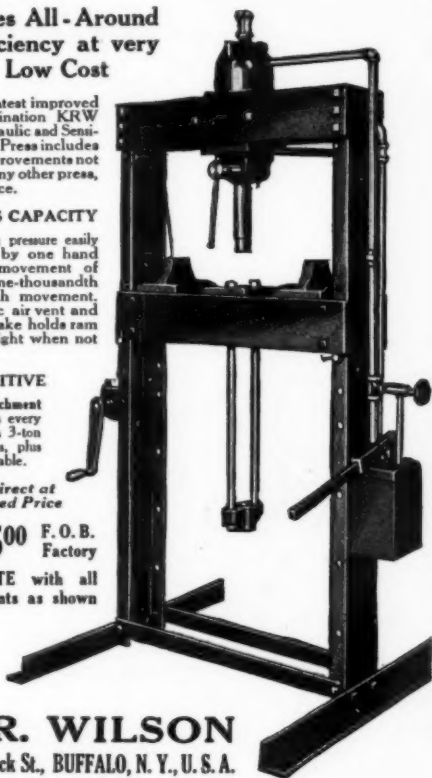
SENSITIVE

Press Attachment incorporates every feature of a 3-ton bench press, plus adjustable table.

*Sold direct at
Reduced Price*

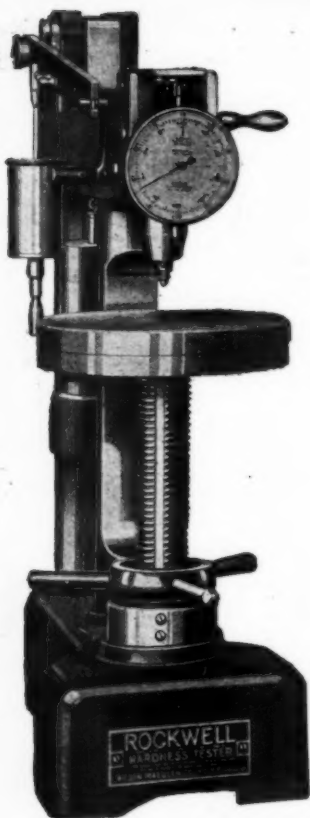
\$115⁰⁰ F. O. B.
Factory

COMPLETE with all
Attachments as shown



K. R. WILSON
10-14 Lock St., BUFFALO, N. Y., U. S. A.

K. R. Wilson Shop Equipment Sales Co., Los Angeles, California
Export Department: 126 Liberty St., New York City



ROCKWELL

**Hardness
Tester**

*We make
it.*

WILSON-MAEULEN **CO**

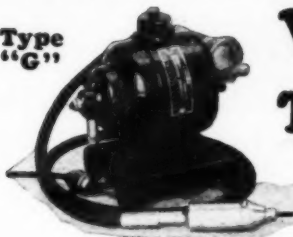
INCORPORATED

735 East 143rd Street,

New York

**For Production Work—
Screw Driving—Nut Setting—Use**

**Type
"G"**



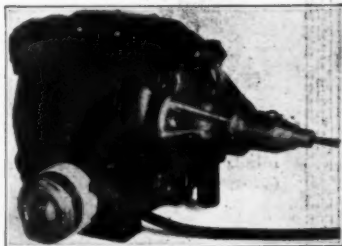
**VIM
TOOLS**

**Portable
Electric
Versatile**

TYPE "G" VIM Tool has flexible shaft with Universal Motor, and is a very handy machine for small screws up to No. 6. Tool weighs only 12 ounces. Excellent for use in out-of-the-way places.

Type "D"

This machine can be screwed in any handy place, for use on small electric jobs such as plugs, sockets, etc. Just push the work on the bit or socket—VIM drives it up in jig time,



Among other types is the Bench Machine—Type "C"—used with or without foot pedal, just the tool for production work.

NOTE—In all types, the bit does not rotate until the screw is applied.

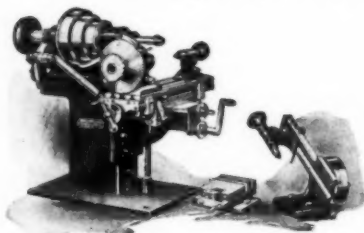
Send for Circulars and Prices

Vim Electric Tool Company
149 Broadway, New York City

HARDINGE

Cataract Better Work Bench Miller

Speed Accuracy Adaptability



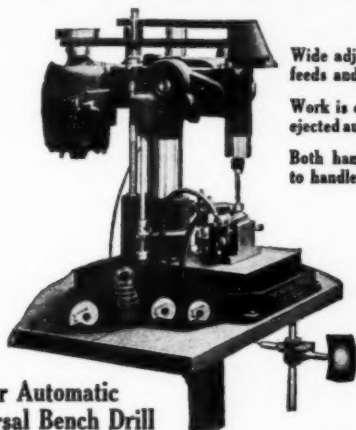
Many years of practical experience and designing has brought forth a miller which fulfills the demands of our day—speed, accuracy and adaptability.

Our *Cataract Bench Miller* has a wide range of feeds. It has independent steel indexes graduated to read to thousandths of an inch, and is equally well adapted for the lighter tool-room, mixed or production work.

*Complete data and interesting price
gladly sent on request*

Hardinge Brothers Inc.
4149 Ravenswood Ave.
Chicago, Ill.

For Large Production Drilling In Small Parts of Varied Shapes



Wide adjustability of feeds and speeds.

Work is clamped and ejected automatically.

Both hands left free to handle work.

Stecher Automatic Universal Bench Drill

The number of holes that can be drilled in a given time on the "Stecher Automatic" is limited only by the capacity of the drill.

The wide adjustability of speeds and feeds; the automatic clamping, releasing and ejection of work; the control of feed by a slight knee pressure, leaving both hands free to handle work—these are some of the features that make the "Stecher" such a *remarkable producer at bed-rock cost.*

The mere pulling of a lever changes the "Stecher" from an automatic production tool with power feed into a high speed drill press with sensitive hand feed. We can also furnish dial, rotary or magazine feeds to suit conditions.

*Write for folder, which gives the complete description
Also send us samples of your small parts to be drilled*

The Chas. Stecher Co., 2452 N. Greenview Ave.,
CHICAGO, ILLINOIS

Be sure the letter



is on all your
Punches and Dies

They are made in our own factory and are genuine.

No. 7 ROLLER BEAR'G PUNCH

No. 11 BALL BEARING PUNCH



Capacity $\frac{1}{4}$ " thru $\frac{1}{2}$ " iron
Weight.....6 $\frac{1}{2}$ lbs.

Capacity $\frac{3}{8}$ " thru $\frac{1}{4}$ " iron
Weight.....8 lbs.

MADE IN 3 SIZES

Nos. 7-7 $\frac{1}{2}$ -8

No. 24 BALL BEARING PUNCH

ANGLE IRON SHEAR No. 4



Capacity $\frac{1}{2}$ " hole in $\frac{3}{8}$ " iron
Weight.....45 lbs.
Punch in center of 7"

Capacity 2"x2"x $\frac{1}{4}$ " Angle Iron
Weight.....44 lbs.
Inserted Tool Steel Blades

No. 50 Angle Iron Mitre Notcher and No. 51 Angle Iron Bender

Weight of Mitre Notcher.....55 lbs.
Weight of Mitre Notcher Bender 43 lbs.

Capacity—Will Shear Mitre in
2"x2"x $\frac{1}{4}$ " Angle Iron
or Smaller.

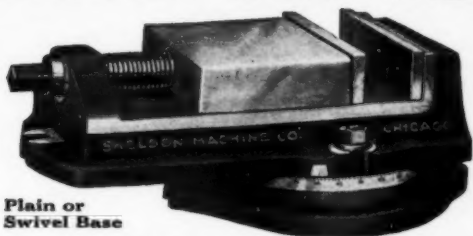


Whitney Metal Tool Co.

95 Forbes Street,

Rockford, Illinois

SHELDON MILLING MACHINE VISES



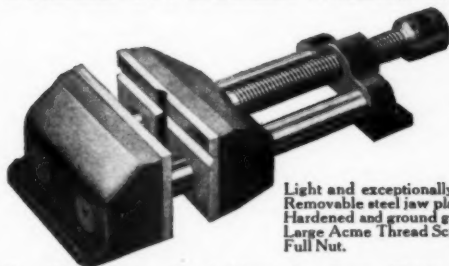
**Plain or
Swivel Base**

The swivel vise is the plain vise with the addition of a circular base, graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

Specifications and Prices

No.	Width Jaws	Depth Jaws	Jaws Open	Plain Vise		Swivel Vise	
				Weight	Price	Weight	Price
3	3 1/4"	1 3/4"	2 1/4"	15 lbs.	\$16.00	25 lbs.	\$20.00
4	4 1/2"	1 3/4"	3 1/2"	30 lbs.	\$20.00	45 lbs.	\$24.00
6	6 1/2"	2"	4 1/2"	70 lbs.	\$30.00	90 lbs.	\$40.00
8	8 1/2"	2 1/2"	6 1/2"	160 lbs.	\$45.00	225 lbs.	\$60.00

SHELDON DRILL PRESS VISE



Light and exceptionally strong.
Removable steel jaw plates.
Hardened and ground guide bars.
Large Acme Thread Screw.
Full Nut.

No.	Width of Jaws	Depth of Jaws	Jaws Open	Weight	Price
D-4	4 1/4"	1 1/4"	4"	15 lbs.	\$12.00
D-6	6 1/2"	1 3/4"	6"	35 lbs.	\$18.00
D-9	9"	2 3/8"	9"	70 lbs.	\$24.00

SHELDON MACHINE CO. 3250 Cottage Grove Ave., CHICAGO, ILLINOIS

EXCELSIOR

Circular Angle Bending Machine No. 14

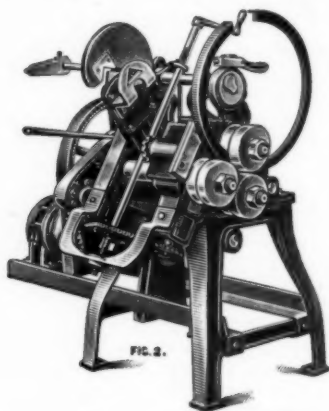


FIG. 2.



Band and Angle Iron
Forming Machine No. 13

Mfgs. of Shearing and Punching Machines,
Automatic Polishing and Buffing Machines.

Excelsior Tool & Machine Co.

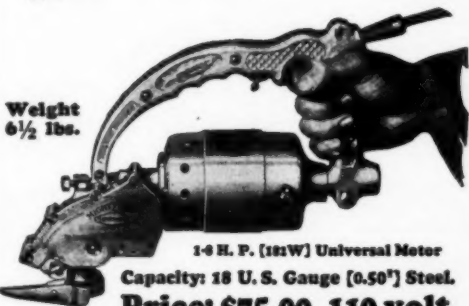
East St. Louis, Illinois

**\$1.00 Saved Per Day Means
\$300. Per Year**

**Follow The Tool Economy of
Over 6000 Unishear Users**

Unishear Cuts Your Cutting Cost in Half

THE MIGHTY MIDGET



**Weight
6½ lbs.**

1-6 H. P. [182W] Universal Motor

Capacity: 18 U. S. Gauge [0.50"] Steel.

Price: \$75.00, 110 volt.

\$78.00, 220 volt.

*A MIDGET in size—a GIANT in power. Built with the
precision of a watch and the ruggedness of a Pile Driver.
Easier to handle than a pair of snips.*

The



Line

**Includes many other models in heavier machines for cutting sheets up
to ¼" boiler plate, all built on the famous Unishear principle.**

Complete Catalog sent on request.

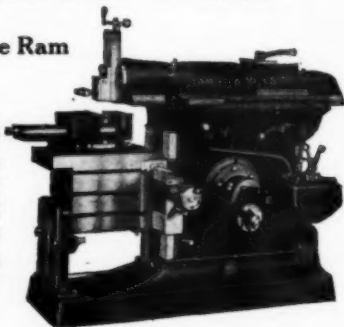
The UNISHEAR CO., Inc.

Main Office & Factory, New York, N. Y., 270 Lafayette St.

SHAPERS

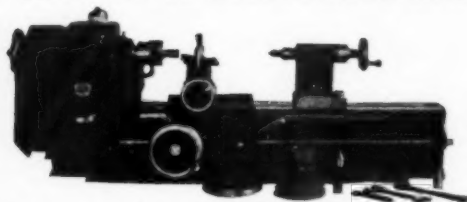
"V" Type Ram

12", 14", 16",
20", 25" Gear
Box single pul-
ley or motor
drive, also 16",
20", 25" B. G.
cone drive with
belt shifter. 32"
B. G. all geared
single pulley or
motor drive, all
sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.

9" A. V. Carroll Geared Head Lathe



A 9" Geared Head Lathe for manufacturing plants, tool rooms, industrial plants, schools, service stations, homes and jobbing shops.

All steel gears, three changes in head and gear box. $\frac{1}{4}$ H. P. motor direct connected. Cuts right or left hand threads. Furnished also with three step cone belt drive.

Circular on request

A. V. Carroll Machine Tool Co.
Norwood, Cincinnati, Ohio

12 SPINDLE SPEEDS

Chrome Nickel Steel Gears



**C. & J. 15/16-inch
Geared Head
Motor Drive Lathe**

ASK FOR FURTHER DETAILS

**Carroll & Jamieson Machine Tool Co.
Batavia, Ohio**

The NEW HAMILTON



LATHES

are unsurpassed for strength and accuracy. Most convenient heavy duty quick change gear lathes for production and tool room use. Single and double back gear with cone drive. Geared head with belt and motor drive.

Sizes 16'-18'-20'-22' and 24'

Send for new catalogue bulletin

The Hamilton Tool Co., Hamilton, Ohio

GEARS

All Kinds—Small



The most accurate made and prices reasonable. We carry a complete line of gears in stock for immediate shipment. Can also quote on special gears of all kinds. Send us your inquiries.

Write for Catalogue No. 70

CHICAGO STOCK GEAR WORKS
105 South Jefferson Street, Chicago, Ill.

MIKRON



**AUTOMATIC
SMALL PRECISION**

Gear Hobbers

Gear Cutters

Pinion Hobbers

Thread Millers

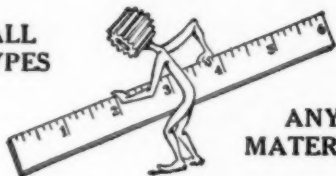
Hob Grinders

Catalogs On Request

Triplex Machine Tool Corp.
50 Church St., New York City

Mass.  Gears

ALL
TYPES



ANY
MATERIAL

Medium and Small Size Gears

MASSACHUSETTS GEAR & TOOL CO.

36 Nashua St., Woburn, Mass.

IXL GEARS



*All Sizes
and Types
for Every
Requirement*

send for
660 Page Catalog
"Gear Problems"

over
60,000
different patterns

FOOTE BROS.
GEAR & MACHINE CO.
Dept. 34
111 N. Canal St., Chicago

your "special"
Problem
may be a
Standard
one with
us

ZEISS OPTICAL DIVIDING HEAD

For Precision spacings on master gears, index plates, jigs, spline shafts, etc.

Permanent accuracy, as settings obtained from glass dial on main spindle; not by gearing. No accumulative errors.



Suitable for manufacturing and checking alike.

Ask for catalog 884

GEORGE SCHERR CO., 142 W. Liberty St., NEW YORK

STANDARDIZATION PAYS

Universal Joints

Steel and Bronze



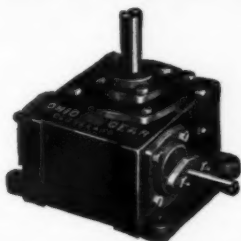
*Send for Circular giving specifications
and prices on complete line*

Boston Gear Works Sales Co.

Norfolk Downs, Quincy, Mass.

BOSTON NEW YORK PHILADELPHIA CLEVELAND CHICAGO

BOSTON GEARS



SPEED REDUCERS

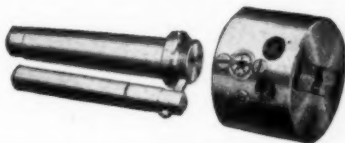
$\frac{1}{8}$ to 2 Horse Power

The Ohio Gear Company

1333 East 179th Street,

Cleveland, Ohio

For Economy in Precision Boring



**Flynn
Micrometer
Off-Set
Boring Heads**

A mechanically-perfect precision head of simple design and few parts.

All parts of heat-treated nickel steel.

This compact head has the least overhang of any head on the market, yielding utmost rigidity, and maximum table travel.

Made in a full range of sizes to fit all standard spindles and arbors. Send for descriptive bulletin and price list.

J. M. WATERSTON, 426 Woodward Ave., DETROIT, MICH.

ACME DOWEL PINS



Standard hardened and ground to within .0002" over listed sizes. Also carried oversize .001" for use in repair work, etc. Ask for Bulletin No. 551.

ACME DRILL BUSHINGS

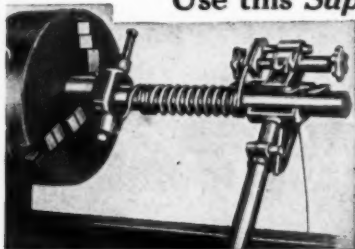
Bulletin No. 501 describes and illustrates the various types and standard sizes of ACME Drill Bushings. Special sizes made to your order.



Bulletins and special low prices sent upon request.

ACME INDUSTRIAL CO.
419 Carpenter St., Chicago, Ill.

When You Need Springs— Use this *Superior Tool*



ON LATHE OR VISE

The Right Springs for any job can be wound **perfect and uniform**. Pitch adjusting screw with **graduations** guarantees correct tension or compression—, closes pitch on both ends. **Capacity—**, hair

spring to 1/4-in. tempered steel wire, maximum diameter 2 in. Rated concerns: Send for our special 5 days' trial offer and low price on this

Handy Long Life Utility Tool

Superior Spring Winding Tool Co.

776 Third Street,

Milwaukee, Wis.

E-Z THREAD DIAL

Thread cutting on engine lathes made easy, and at lower cost. Made in four sizes. Can be easily attached to all size lathes. A reliable device that will aid the operator in the work of cutting threads. With it threads can be cut close up to shoulders as easily as the ordinary thread.



Eliminates stopping or reversing the lathe.

The many repeat orders received prove it is satisfactory after trial.

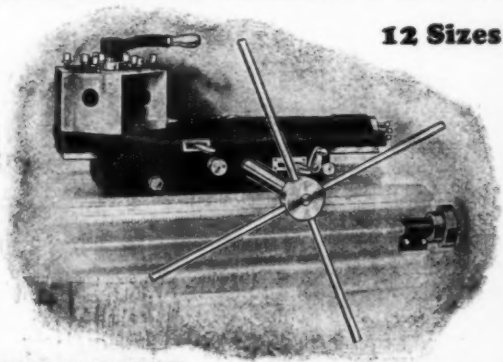
Can be shipped within two days after receipt of order.

Sent on thirty days' trial. Send for latest folder today.

JAMES M. COLVEN, 20 Wolfe Street, Yonkers, N. Y.

Standardized Lathe Turrets

12 Sizes

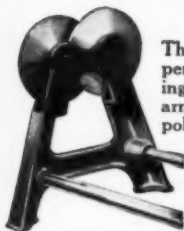


FAY & SCOTT
Dexter, Maine

For any make of Lathe
old or new

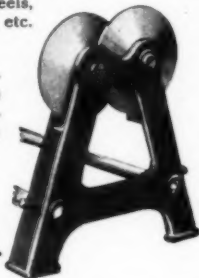
Twentieth Century Balancing Tool

Always on the level



The most practical, sensitive and inexpensive device manufactured for balancing pulleys, cones, armatures, fly wheels, polishing wheels, etc.

Will set anywhere and is easily portable. In sizes up to 24,000 pounds capacity.



Ask for the Bulletin

Sundstrand Machine Tool Co.
Rockford, Ill.

Keyseats Shafting In Place

Anywhere, in any position



**The BURR
Portable
Keyseater**

Cuts accurate Keyways up to 12' long anywhere, in any position, in shafts up to 5" diameter.

DON'T WAIT until you need it, when you would gladly pay 10 times its cost to have one—**ORDER NOW.**

Over 10,000 in use. Will you be the next to play safe?

JOHN T. BURR & SON
422 Kent Ave., Brooklyn, N. Y.

Anderson Ever Ready Exceedingly Sensitive

Balancing Ways Easy to Manipulate



Made in six sizes to balance anything that revolves from a crank shaft to a 24,000 lb. turbine rotor. They require no special leveling, no adjustment, and no centers.

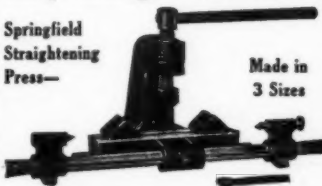
Equipped with glass-hard spindles, chilled steel discs, and especially sensitive ball bearings, to give accurate, long time service.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20"
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bend	Bld	Bis	Bib	Ben	

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

Any Length Job Straightened

Springfield
Straightening
Press—



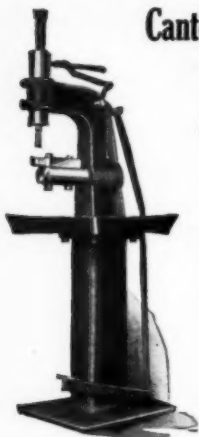
Made in
3 Sizes

The Acme of
Convenience
In Shop
Factory
Toolroom
Garage

By straightening any length rough or finished work — truing sprung tools, and testing cams, crankshafts, etc., the Springfield makes itself invaluable in shop, factory, toolroom or garage. Its arrangement is the acme of convenience. It can be placed on bench, or beside lathe—saving many steps and waste handlings.

Write for folder illustrating many of its uses

The Springfield Machine Tool Company
633 West Southern Avenue, SPRINGFIELD, OHIO
We also manufacture Engine Lathes and Shapers



Canton Pedestal and Bench Pneumatic Riveters

HAVE UNIQUE FEATURES:—

- Advancing inner cylinder.
- Valveless construction.
- Plate Closer for clamping parts together while driving the rivet.
- 600 to 5000 blows per minute.
- Multiple Riveting.
- No adjustment necessary for rivets of different lengths.
- Practical for marking serial numbers or trade mark on flat surfaces.

*We also build a complete line of
Chipping and Chalking Hammers*

Canton Pneumatic Co.
1720-9th St., S. W., Canton, Ohio

Mall "Jack of All Trades"

and

Masters Them Too



Cleaning
Scraping
Filing
Sanding
Polishing
Grinding
Sawing
Finishing

**Mall Tools are
powerful tools**

Write for Catalog

Mall Tool Company, 7730 So. Chicago Ave.,
Chicago, Illinois

Grant Rotary Riveter



**Highest Speed
Perfect Uniformity
Lowest Cost**

A Grant Riveter places and finishes one rivet every second it is in operation.

It will finish rivets to the exact degree of tightness or looseness that you desire, and the heads are perfectly formed and highly polished.

The Grant Riveter keeps operating costs at a minimum, and is so simple that unskilled labor can operate it as effectively as can skilled machinists.

Send samples of your riveting work and ask for a catalog

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Vanderbeek Universal Joints



—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generous sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

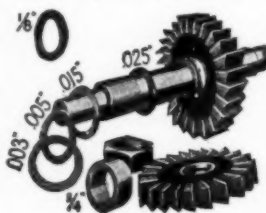
Write today for our Descriptive Catalog.

American Tool Works, Inc.
Hartford, Conn., U. S. A.



Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



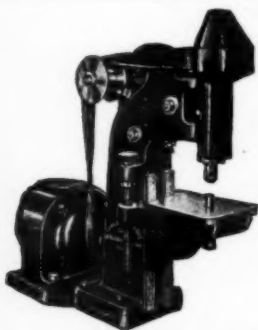
Stock sizes for arbors of following diameters: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{7}{8}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in. and larger.

Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000" made to order, with keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company
3443 West Fort St., Detroit, Mich.



For Your Small RIVETING

The Linley Rotary RIVET SPINNER

Covers a wide field of riveting.
Simple in design but—
Rigid and powerful.
Guaranteed to give satisfaction.
Get the full details before buying a riveter

WE ALSO MANUFACTURE

EQUIPMENT FOR ROTARY RIVET SPINNING MACHINES

SEND FOR DESCRIPTIVE FOLDER

Linley Brothers Co., 579 Fairfield Ave., Bridgeport, Conn.

"PROCUNIER"

SAFETY TAPPING ATTACHMENT with the "Procunier" Safety Friction and "Double-Jaw" tap holder gives *greater accuracy less tap breakage*, and more tapped holes to the dollar.



All Hardened Gears

Special Hardened and Treated Clutches

Balanced Reversing Mechanism

With the "Procunier" Safety Friction Device blind holes can be tapped just as easily as through holes, and without danger of breakage. Don't hesitate to ask for a free trial.

Catalogue 102-B gives complete details of "PROCUNIER" Tapping Devices, Quick Change Chucks, Stud Setters and Bench Tapping Machines.

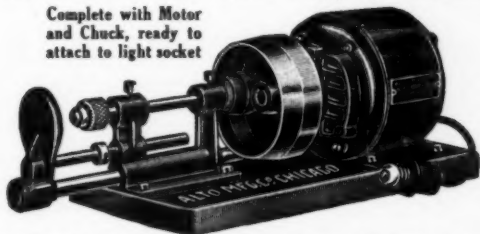
Procunier Safety Chuck Co.

14 So. Clinton St.,

CHICAGO, ILL.

No. 1 ALTO Motor Driven High Speed Tapping Machine

Complete with Motor and Chuck, ready to attach to light socket



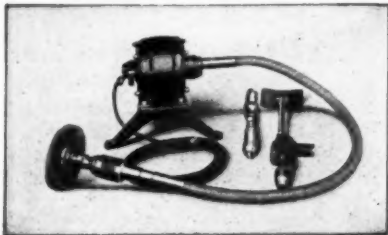
The ALTO No. 1 is a simple but compact Tapping Machine. Entirely self-contained, it operates from any handy light socket. It will tap forward at the rate of 1450 r. p. m. and reverses *three times as fast*—at the rate of 5000 r. p. m. Has a capacity of $\frac{3}{16}$ " in brass and $\frac{1}{32}$ " in steel. The low price enables it to pay for itself. We also make other sizes of Tapping Machines.

Write for descriptive matter and price

The Alto Mfg. Co., 1647-51 Wolfram St.
CHICAGO, ILL.

The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy
grinding or polishing job

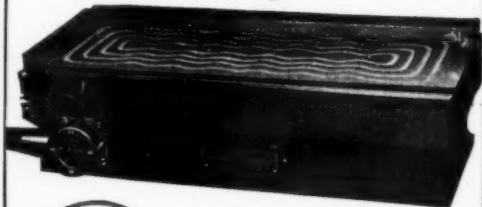


Send for our latest bulletin

Stow Flexible Shaft Co., 3454 Ludlow St.,
Philadelphia, Pa.

The Best Since 1876

"D & W" Flat & Rotary Magnetic Chucks



Our Extensive Line covers a wide range. They save time and cut costs of holding iron and steel pieces. Glad to investigate and report on any problem you may have in connection with the use of Flat and Rotary Magnetic Chucks. Address

J. & H. Electric Co.
200 Richmond St., Providence, R. I.

**Tight Joints
that
Swivel**



*Sample
on
Approval*

Quick-As-Wink Industrial Hose Couplings

These bronze couplings swivel freely but NEVER LEAK and can't be put out of commission. Just push together Quick-As-Wink, that's all! Can not become disconnected accidentally. Guaranteed for one year. Made in sizes from 1/8" to 4". Get descriptive bulletin and prices.

C. B. HUNT & SON - - - SALEM, OHIO

Don't Call a Gang of Men



away from their work to do the lifting and lugging of heavy pieces, when one man and a

Canton Portable Crane and Truck

can do it more quickly, more efficiently and with greater safety. **The Canton** is made in six sizes to hoist, truck and place any load up to 6,000 lbs. weight. Can be equipped now with the safety friction brake.

*It will pay you to investigate
Write today for Booklet E-8*

Canton Foundry & Machine Co.

CANTON, OHIO

New York Office: 101 West 31st Street

SIGOURNEY Sensitive Drills

All Parts Interchangeable!

Made with 1 to 4 spindles.
Self-aligning ball bearings.

Extremely sensitive, accurate
and durable, they are *quality*
drills for those who buy tools
for what they do.

The picture shows
our No. 0 2-spindle
ball bearing Bench
Drill--a splendid tool.

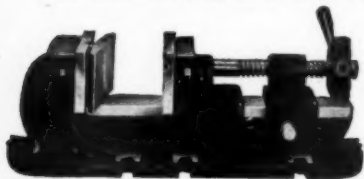


Booklets on both Plain and Ball Bearing Drills

THE SIGOURNEY TOOL CO., HARTFORD, CONN.

Gem Drill Press Vise

With Automatic, Quick-Acting, Powerful Grip



*Holds
Irregular
Pieces
Firmly*

The jaws are made of steel, hardened and ground, with horizontal and vertical "V" grooves. The independent swivel jaw holds taper and irregular work with a bull-dog grip. Its quick action, powerful grip and adaptability make it *the most efficient vise on the market*. Made in three sizes. Write today for folder, picturing its use in drilling and milling operations.

J. E. Martin Tool & Die Works, 528 W. State St.
Springfield, O.

The **BARKER** GENERAL PURPOSE VISE

For Planers, Shapers, Drilling and Milling Machines



Two Sizes

Width of jaws $11\frac{1}{2}''$ — $12''$
Depth of jaws $2\frac{1}{2}''$ — $3''$
Jaws open $8''$ — $12''$
Weight 180—210 lbs.

Also 16" Mold Makers' Vise

OUR MOLD MAKERS' VISE has 13" width of jaws, 7" depth, and jaws open 16"—weight 290 lbs.

ALL BARKER VISES are made extra heavy, with steel faced jaws, and are graduated to swivel any angle. They stand lots of hard usage.

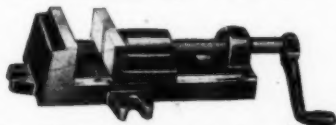
Get in touch with us before buying

WM. BARKER & CO.

Manufacturer of Machine Tools,

COVINGTON, KY.

A Handy Labor Saving



SHOP VISE

The

AMMCO

Price:

\$5.00

F. O. B. Chicago

The AMMCO Drill Press Vise is rugged, with accurately machined jaws that provide a positive grip on the work. V-shaped slot in movable jaw gives positive clamping of vertical work, while swivel handle makes it easy to adjust in cramped positions. Three flanges on base enable you to attach vise to drill press or work bench.

SPECIFICATIONS:— Width of jaw, $3\frac{1}{2}''$.
Jaw opens, $4\frac{1}{2}''$.

Depth of jaw, $1\frac{1}{2}''$.
Weight, 11 lbs.

Take advantage of this opportunity—Send your order today

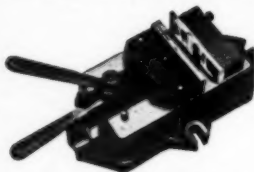
PASSMAN BROTHERS

707 Washington Blvd.,

Chicago, Ill.

Speed — Power — Strength — Accuracy

Hartford Milling Vise



Jaw width 5"
 Jaw depth 1 1/4"
 Maximum opening 3 1/2"
 Weight 40 lbs.

Also made in the swivel-jaw type with hard or soft jaws, maximum opening 2 1/4".

The "Hartford" is designed to give the utmost in service. A low cam-faced handle gives required quick opening and return—while a top eccentric lever-handle furnishes tremendous binding power. You can rely on "Hartford" to survive the hardest usage. Its steel parts are drop forged, hardened and ground—its base is made of special iron.

Our catalog gives details and describes its many uses

We also Build Machinery on a Contract Basis and Design and Develop Special Automatic Machinery—Gears Cut to Order.

Hartford Special Machinery Co., 285 Homestead Ave., HARTFORD, CONN.

THOMPSON
12"x36"
Universal

**ALL Grinding on
 ONE Machine—**



**Saves
 Time
 and
 Money**

Thoroughly efficient, accurate and dependable. Work adjusts to a fixed grinding wheel — an exclusive feature that's better.

Does all kinds of grinding like a single purpose machine.

Machines are equipped with the new auxiliary coarse cross feed for surface grinding.

**The Thompson
 Grinder Co.**

**1534 West Main St.,
 Springfield, Ohio**

An Appreciation

I CAN almost despise the man who sneers at machinery, at these greater tools that we are learning to use so well. To me they are objects for downright affection.

Almost super-human has been the intelligence that has gone into the building of them. I am convinced that their creation has involved quite as high an order of genius as did the making of Shakespeare's plays or Beethoven's symphonies. And for their service to humanity, there is nothing with which to compare them.

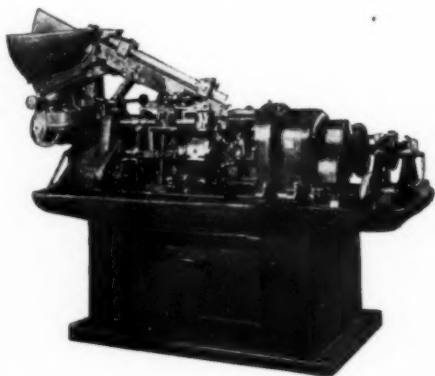
Man created no useful or beautiful thing until he first had made a tool. And with it he both extended and multiplied the power of his hand. The most complicated machine of today does just that. An automatic lathe is a bone knife that has been civilized. A pneumatic hammer is a stone mallet with a college education.

Unimaginative, precedent-enslaved minds fail to see the new and finer future which this "age of machinery" is inaugurating.

GLEN BUCK

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Combined Automatic Pointing and Threading Machines

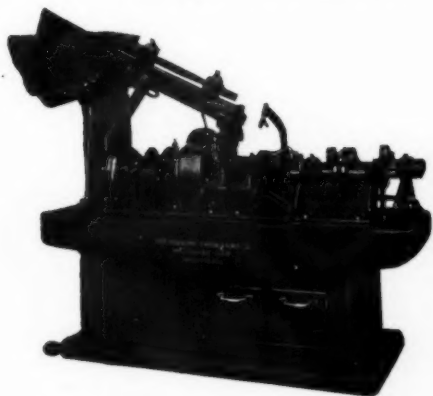


For Bolts and Cap Screws
Capacity— $3/16$ "x1" Diameter
1" to 6" Long

Write for Full

THE ECONOMY ENGINEERING

Automatic Shaving Machines



Shaves top and underneath
head of Cap Screws
Capacity $\frac{1}{4}$ " x $\frac{3}{4}$ " Diameter
 $\frac{3}{4}$ " to $5\frac{1}{2}$ " Long

Information

COMPANY, - Willoughby, Ohio



Economical Finishing

"Piece by piece" methods of metal finishing are giving way to a faster and far more economical process. In many lines, present day production methods and market condition, demand it.

Why not finish your small metal parts "hundreds at a time" in an Abbott Ball Burnishing Barrel. It is a fact, that finishing costs have been cut as much as 80% by the adoption of this efficient method.

Send in a few samples of your work for an experimental burnished finish just to prove to yourself what this method offers. We will return them promptly together with treatment and recommendations. No obligation on your part.

The Abbott Ball Company

"Originators of Commercial Ball Burnishing"

1043 New Britain Ave., Hartford, Conn.

Drilling Cost Cut 76%

A MIDWEST lamp manufacturer, using carbon drills, was confronted with the problem of reducing hole production cost and speeding up hole production.

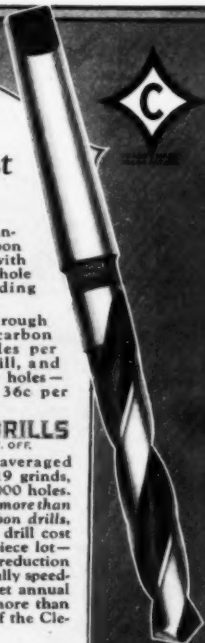
On a certain job, run through in 10,000-piece lots, carbon drills averaged 780 holes per grind, 24 grinds per drill, and total drill life of 20,000 holes—with direct drill cost of 36¢ per 10,000 piece lot.

CLE-FORGE HIGH SPEED DRILLS

TRADE MARK REG. U.S. PAT. OFF.

were then tried. They averaged 10,000 holes per grind, 19 grinds, and total drill life of 200,000 holes. Although costing, per drill, more than twice as much as the carbon drills, Cle-Forge showed a direct drill cost of only 8½¢ per 10,000 piece lot—demonstrating a net cost reduction of over 76%, while materially speeding up production. The net annual saving was \$381.06—or more than 2½ times the actual cost of the Cle-Forge Drills used!

This complete story is told
in Digest No. 59. Shall
we send you a copy—
without obligation?



TWIST DRILL
COMPANY
CLEVELAND
NEW YORK CHICAGO LONDON
SAN FRANCISCO

LINK PROD

and the small lot...

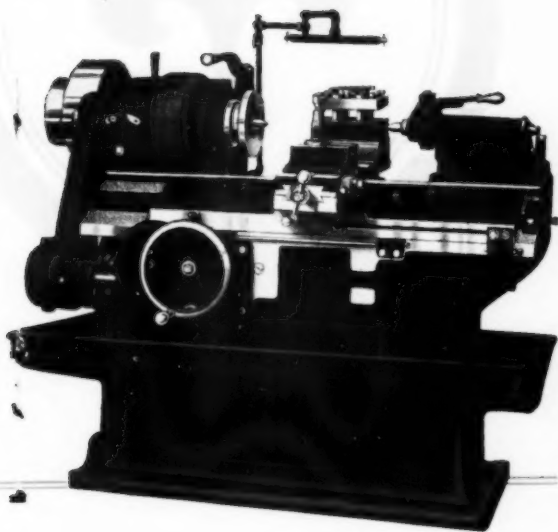
THE Multi-Cut Lathe is unique in that it offers multiple tool savings on small lot production. It requires only a lathe operator. The rugged simplicity of the Multi-Cut Lathe makes it an extremely profitable tool for small quantity production. The set-up on the Multi-Cut is simple and there are no cams of any kind to consider. The tooling consists of ordinary lathe tools held in standard tool blocks.

Many shops including our own are using batteries of Multi-Cut Lathes on quantities of 25 to 50 pieces at a considerable saving over former engine lathe methods.

The Multi-Cut Lathe on such work will usually replace four or five regular engine lathes and yet maintain an increased total production.

The R.K. LeBlond Machine Tool Company
Cincinnati, Ohio

DUCTION



A 30,000 R. P. M. Grinder Mounted In Tool Post Holder



This Grinder is an ideal portable tool that has a wide range of usefulness. It delivers the proper surface speed and power to small wheels, giving them maximum cutting capacity. Their principle of construction is ideal for high speed, viz; a centralized vibrationless drive with no wearing parts other than two ball bearings which are kept cold by exhaust air. The motor operates continuously at less than room temperature.

Onsrud Pneumatic Turbine Drive grinders are built in five sizes having speeds from 15,000 to 60,000 R.P.M. and can be applied to practically all makes of internal grinding machines. They are light in weight and ruggedly constructed. (The unit pictured above weighs only 6 lbs.) Onsrud Grinders are built for many purposes.

Send for complete illustrated literature

Onsrud Machine Works, Inc., 3906-32 Palmer St.,
CHICAGO, ILL.

"Not a Cent for Repairs"

"We find your machine far superior to other lathe grinders. The fact that it has not cost us a single cent for repairs, or has not needed any attention in the three years we have used it, also speaks well for your machine."

Other Users "Speak as Well" of the ATLANTIC Precision Lathe Grinder

Among the prominent concerns who have proved to their satisfaction the ATLANTIC claims of durability and low cost operation are: Edison Laboratories, Splitdorf Electric Co., Bethlehem Steel Co., Crocker-Wheeler Co., Gould & Eberhardt Co., Gulf Refining Co., and many others. For external, internal and surface grinding on any lathe from 14-inch swing up, you cannot equal the ATLANTIC—and its cost is *one-third less!*

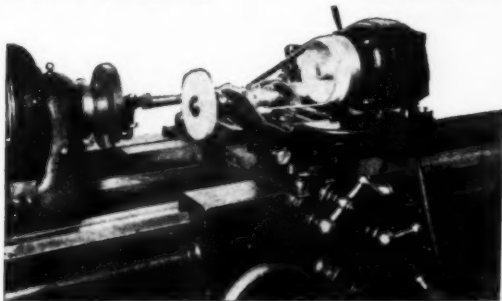
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THREE DAYS' TRIAL—NO EXPENSE TO YOU

The Kern Electric & Eng. Co., Inc.

1092 So. Orange St.,

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DANLY DIE SETS



Immediate delivery from stock, standardized, interchangeable die sets—a type and size for every need. Special die sets built to specifications or designed to meet requirements. Send for Danly Catalogue—The Manual of the Metal Stamping Industry, used by over 14,500 designers, etc.

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Danly Machine Specialties, Inc.
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MARKING DEVICES

RUBBER STAMPS



STEEL STAMPS



BURNING

BRANDS



ETCHED METAL
NAME PLATES



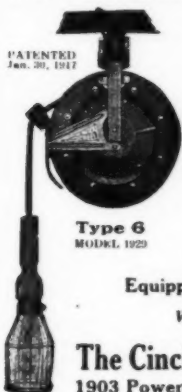
BRASS
LABELS



THE SCHWERTLE STAMP CO.
BRIDGEPORT, CONN.

A SHINING LIGHT

PATENTED
Jan. 30, 1917



Type 6
MODEL 1929

That Reaches Anywhere AUTEX Extension Reel

Here is a light that is not tied down—it goes wherever you need it. Brightens up the darkest corner or that almost inaccessible nook. Saves eye strain, prevents fatigue, speeds up production and so speedily pays for itself. Indispensable in Machine Shops, Service Stations and Industrial Plants of all kinds.

Try the AUTEX in Your Plant

Approved by the Underwriters

Equipped with Rubber Covered Cord

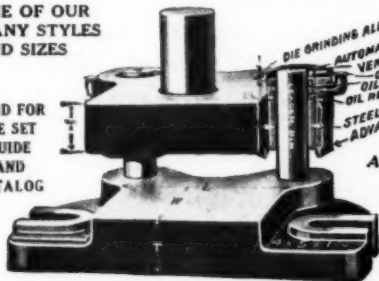
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The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio

Automatically Oiled Die Sets

ONE OF OUR
MANY STYLES
AND SIZES

SEND FOR
DIE SET
GUIDE
AND
CATALOG



**Automatically
Oiled**

E. A. BAUMBACH MFG. CO.

GENERAL OFFICE AND WORKS

1810 South Kilbourn Ave., CHICAGO, ILLINOIS

Sales and Engineering Offices—Principal Cities U. S. A. and Canada

Rapid Polishing with the **TAKE-ABOUT Grinder**



You can save valuable time and labor in polishing metal with the TAKE-ABOUT Grinder. The rapid belt action provides a smooth, perfect finish in a fraction of the time required for hand filing and finishing.

Speedy. Easy to operate. Runs off light socket. Bench Stand converts the TAKE-ABOUT into handy tool and edge grinder.

A demonstration will convince you—ask for one NOW.

The Porter-Cable Machine Co.
Salina Street, Syracuse, N. Y.

Polishing cast iron lathe carriages
at Monarch Tool Co., Sidney, Ohio

PORTER-CABLE GRINDERS



The Speediest, Most Economical Buffing Tool Made



The
Quick-As-Wink

**BUFFING
WHEEL**

Reduces Buffing
Costs by
50%

A remarkable buffing system at half the cost of rag-buffs. Absolutely safe at high speeds. Abrasive strips attached in 30 seconds. Gives 100% buffing surface. Wheels accurately balanced. Tested at 8,000 R. P. Ms. Thoroughly guaranteed. Used by hundreds of plants throughout the country.

Send for Complete Details

C. B. HUNT & SON . Salem, Ohio

PEERLESS

For Flat
Work

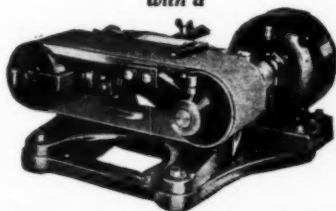


8 Sizes

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PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

Abolish Expensive Hand Finishing
with a

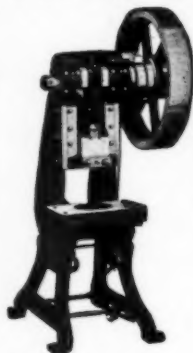


Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. *Details of this and other styles and sizes on request.*

WALLS SALES CORP., 96 Warren Street
NEW YORK

The Spirit Of the Times



is reflected in the speed and stamina of Rockford High Duty Punch Presses.

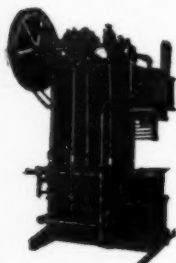
They are built to produce and maintain Hi-Production—and they do it.

Wide range of sizes and types.

Write today for new catalog

Rockford Iron Works
Rockford, Ill.

Lourie Hydraulic



Type WK

Open Throat Presses

for

Straightening, Bending,
Forming, Riveting, Forcing,
Drifting, Broaching, etc.

Any design in all sizes

Write for bulletin 2302

Lourie Manufacturing Co.
565 Washington Blvd., Chicago, Ill.



Atlas Arbor Presses

For All Forcing Operations

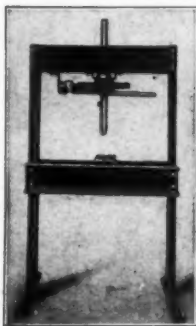
Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

*Department B,
Kalamazoo, Michigan*

Fall River Screw Press



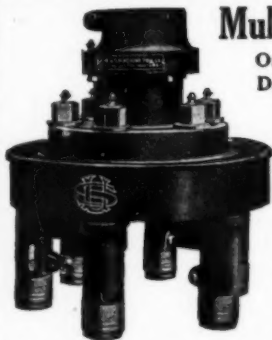
Here is a new screw press which is large enough and strong enough to take care of every job that comes into the average shop. It is built of high grade steel throughout, with special attention given to those parts subject to the hardest strain. 42 inches wide and table is 8 inches. Capable of exerting over 65 tons pressure.

Write for further information

Fall River Grinding & Machine Co.

JESSE ST.,

FALL RIVER, MASS.



Multiple Drilling

On Your 1-Spindle
Drilling Machine

The U. S. Multiple Drill Head converts any single spindle drill into a multiple drill press with two to six adjustable spindles that will drill any pattern while utilizing the same speeds and feeds required for drilling one hole at a time.

Send your problems to our drill-head experts. If necessary, they can design special heads with fixed or adjustable spindles to fit your needs.

The United States Drill Head Co., 1952 W. Sixth St., CINCINNATI, O.

Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

The U. S. is Accurate Simple, Rugged

This completely motorized, 14" sensitive floor drill can be relied on to give accurate, sturdy service drilling holes $\frac{1}{2}$ " and smaller.

Price with motor,
switch and belts - **\$115**

Or with Counter-
shaft for Belt Drive **\$70**

Made of quality materials according to the best mechanical practise. The spindle is provided with a ball thrust bearing, and is counterbalanced by weight inside column. There is a vertical adjustment to head, and tables are adjustable to any type of work.

Let us send you full mechanical details

The U. S. Machine Tool Co.

1952 W. 6th St., Cincinnati, Ohio





BURKE

No. 1 Automatic Production Drill

An automatic production drill with high precision standards. Can be operated in gangs to produce a large amount of work up to $\frac{3}{8}$ ". Counterbalanced tapered spindle runs through large bearing on which top cone is mounted, and the elimination of driving belt pressure on the spindle greatly increases sensitivity. Motor, $\frac{1}{4}$ H. P., is mounted on a special base. All parts are interchangeable. Feed can be set for automatic knockout or hand feed.

Write for Circular

The Burke Machine Tool Co.
297 E. 16th St., Conneaut, Ohio, U. S. A.

"More Holes Per Dollar"

Buffalo

A complete line of motor and belt driven drills, 10 in. to 25 in., backed by over 50 years' tool making experience.

Write for Catalog, 830-C

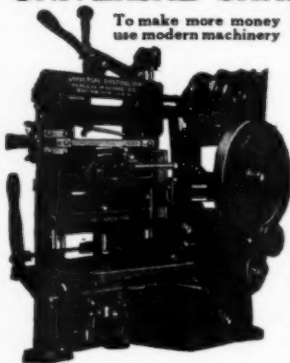
Buffalo Forge Co.

161 Mortimer St., Buffalo, N. Y.

In Canada: Canadian Blower and Forge Co., Ltd., Kitchener, Ont.



—PEERLESS— UNIVERSAL SHAPING SAW



To make more money
use modern machinery

**Different Principles
Greater Efficiency
Give The Most Of—
Speed
Accuracy
Blade Economy**

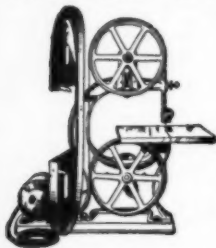
SIZES:
6"x6"--9"x9"--13"x13"

**PEERLESS
HIGH SPEED HACK-SAWS
6"x6" 9"x9" 13"x16"
Sturdy--Efficient--Reliable**

Peerless Machine Co.
1218 Sixteenth St.
Racine, Wisconsin

Write for Details

S. & B. 12" WONDER BAND SAW



**Semi Steel Frame 12x14,
45° Tilt Top Table
V belt and pulleys**

\$35⁰⁰

Without motor, base and guard

A bandsaw fully the equal of high priced machines. Cuts wood or metal with the same ease. Used by large contractors everywhere—Building, roofing and flooring.

Recommended by Kaucher Engineering Co. Chicago, Ill. Large Flooring Contractors working on patent flooring composed of wood and steel splines.

Free Book of Projects with each purchase.

**Representatives and Dealers
Wanted Everywhere**

Write for full descriptive circular

**Complete—\$60.00
15 Days
Free Approval
Money Back Guarantee**

Scott-Bansbach Machinery Co.
130-E South Clinton Street, Chicago, Ill.



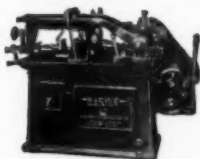
VICTOR High Speed Steel Hack Saw Blades

... they cut faster, last longer and produce a greater number of cuttings in any comparative test.

No wonder that mechanics and metal workers throughout the country are pushing the new Victor High Speed Steel Hack Saw Blades, increasing the demand day after day. Never before has a hack saw blade so completely answered their every need in cutting requirements.

A trial will convince you

VICTOR SAW WORKS, Inc., Middletown, N. Y.



Racine Shear Cut Production Saw—Positive screw feed, cutting time never varies. Blade life is trebled.

Consider These New Standards

The Racine Shear Cut Saw has established new metal cutting standards.

By employing an exclusive new principle of positive, progressive screw feed these advantages are secured: Cutting time in all metals is reduced at least half—constant production at the increased rate is assured—blade life is trebled.

This revolutionary machine enables your production department to set and maintain exact schedules in the cutting department. Write.

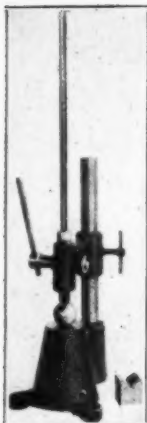
Racine Tool & Machine Co.

1429 Junction Ave., Racine, Wis.

RACINE

HIGH-SPEED

METAL CUTTING MACHINES



Arnold Hardness Tester

**A Portable Machine of Rugged Construction
for Reliable and Speedy Testing over a
Wide Range of Work**

Without complicated or delicate mechanism, it is always ready for instant use.

Upkeep costs negligible. The ball is the only part subject to wear, and it can be changed in a fraction of a minute at a cost of less than one cent.

Measures hardness of raw materials in the stock room as well as finished parts, in the hands of the ordinary workman. Furnished with anvils for rounds, flats, irregular shapes and curved work.

Worth more to you than its moderate cost

Write for more complete information

H. H. ARNOLD CO., Inc., Rockland, Mass.

FEDERAL **Upright Thickness** **Gauge** **"MODEL 55"**

A very rapid bench type gauge for measuring any kind of flat material. Can be used for checking ball bearings and other odd sizes of material by making a few minor changes. Operates either left or right as desired. Portable—table can be raised or lowered and firmly locked. Any standard FEDERAL indicator can be furnished.

*Send for Catalog describing this
and other FEDERAL Models*



Federal Products Corporation
PROVIDENCE, R. I.

Western Branch: 7338 Woodward Ave., Detroit, Mich.

the new—

easy reading dial



Every thousandth numbered—
Speeds up Gauge reading—Re-
lieves eye strain and insures
greater accuracy in testing.

AMES No. 55 Micrometer Dial Gauge

with a wide variety of dial gradu-
ations to choose from. The rec-
ognized standard for general testing use.

Send for bulletin giving complete information

B. C. AMES CO., Waltham, Mass.



STANDARD Dial Indicator

Excels in Service!

The patented "gear cover" of the
STANDARD Dial Indicator gives
the mechanism double protection
from dust, grit and moisture—insur-
ing *smooth action, accuracy and long life*.
The large figures on the dial, free
of shadows and with distinct gradu-
ations make easy reading.

*Catalog and Price Lists of the
entire STANDARD line gladly
sent at your request.*

STANDARD GAGE COMPANY, INC.

Poughkeepsie, N. Y.

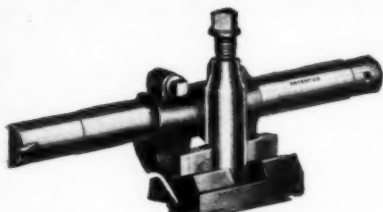
DETROIT

CLEVELAND

DAYTON

CHICAGO

Scully Adjustable Boring and Turning Bars



for Lathes

Adjustable over a large range.

Bars are solid and made of special alloy steel, heat treated.

Bars are held rigid, insuring heavy cuts and faster speeds.

Used for boring, turning and threading. Furnished in several sizes with various sizes of bars and small tools, and to fit it over tool post or into cross slides.

Write for booklet and full information

SCULLY STEEL & IRON CO.

2364 So. Ashland Ave.,

Chicago, Ill.

PALMGREN

Off-Set Boring Tool With Micrometer Adjustment



For

Milling Machine, Drill Press, Boring Mill or Screw Machine.

Tool Always in Line With Work

Made with Morse Taper, Brown & Sharpe, Square or Straight Round Shanks.

Write for Prices Today

Chicago Tool & Engineering Company

8389-93 South Chicago Ave.,

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Die Making Machines

save an average of 50%

Dies, templets, experimental parts, gages and the like can be sawed, filed and lapped on the Oliver of Adrian Die Making Machine much easier, more accurately and in a fraction of the time ordinarily required for handwork.

We also manufacture a line of

Point Thinners.

Drillpointers.

Cutter Grinders



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for
Bulletins*

Oliver Instrument Company, 1408 Maumee St.,
ADRIAN, MICH.



DETROIT

Semi-Automatic DRILLING MACHINE

Drills 900 to 1200 holes per hour

Unsurpassed for speed, accuracy
and low cost operation. Over 1800
in successful operation.

Capacity—No. 60 to $\frac{3}{4}$ -inch Drills.
Standard fixtures will handle round
or hexagon stock. Five spindles,
cam control.

*Send for Folder giving
Complete Details.*

Detroit Machine Tool Co.

5060 Woodward Ave.,

Detroit, Mich.

Nicholson Expanding Mandrels



TURNING a solid mandrel up for every job is nearly as bad shop practice these days, as making a solid reamer for every job instead of using an expansion reamer.

Write us about expanding mandrels

W. H. Nicholson & Co.

117 Oregon St.,

Wilkes-Barre, Pa.

End Mill Economy



Make Straight Shank End Mills equal to Solid Taper Shank. "SCULLY-JONES" CUTTER CHUCKS make this possible; they "CENTER BY THE SHANK" and "DRIVE BY THE SQUARE."

All sizes of CHUCKS and END MILLS in stock.

"Try the combination and be convinced."

Write for copy of our Small Tool Catalog No. 36 which completely lists and describes these tools as well as all other "WEAR-EVER" Production Tools.

Scully-Jones & Company

TOOL DIVISION

1901 S. Rockwell St.,

Chicago, Ill.

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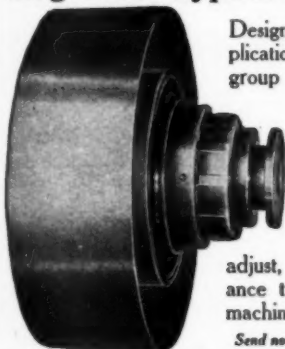
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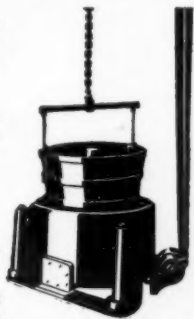
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Monarch Machine Tool Co., Sidney, O.

Mandrels, Expanding

Nicholson & Co., W. H., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Millers, Tilted Rotary and Offset

Oesterlein Machine Co., Cincinnati, Ohio

Milling Attachments

Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Connecticut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Prentice Corp., Worcester, Mass.
Stevens Inc., John B., 27 Cleveland Place, New York
Taylor & Fenn Co., Hartford, Conn.

Milling Machine Spacing Washers

The Co-Operative Mch. Co., Cleveland, O.

Milling Machines, Bench

Ames Co., B. C., Waltham, Mass.
Burke Machine Tool Co., Connecticut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Cam

Frew Machine Co., Philadelphia, Pa.

Milling Machines, Hand

Burke Machine Tool Co., Connecticut, Ohio
Frew Machine Co., Philadelphia, Pa.
Sundstrand Machine Tool Co., Rockford, Ill.
Superior Machine & Eng. Co., Detroit, Mich.
U. S. Machine Tool Co., Cincinnati, O.

Milling Machines, Horizontal

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Manufacturing

Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Plain

Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Connecticut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Sundstrand Machine Tool Co., Rockford, Ill.

Classified Finding Index

Milling Machines, Portable
 Pedrick Tool & Machine Co., Philadelphia

Milling Machines, Spline
 Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal
 Brown & Sharpe Mfg. Co., Providence, R. I.
 Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Milling Machines, Vertical
 Brown & Sharpe Mfg. Co., Providence, R. I.
 Burke Machine Tool Co., Conneaut, Ohio
 Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Reed-Freud Corp., Worcester, Mass.
 Taylor & Fenn Co., Hartford, Conn.

Name Plates, Etched and Stamped
 Schwerdtle Stamp Co., Bridgeport, Conn.

Nut Setters, Electric
 Vim Tool Co., 149 Broadway, New York

Oil Cups
 Gita Bros. Mfg. Co., 1940 S. Kilbourn Ave.,
 Chicago
 Tucker, W. W. & C. F., Hartford, Conn.

Oil Extractors
 Tolhurst Machine Works, Troy, N. Y.

Pins, Leader And Dowel
 Baumbach Mfg. Co., E. A., 1812 So. Kil-
 bourne Ave., Chicago
 Dandy Machine Specialties, Inc., 2118 S. 62nd
 Ave., Chicago

Pipe Bending Machines
 Pedrick Tool & Machine Co., Philadelphia

Planers, Valve Seat, Portable
 Pedrick Tool & Machine Co., Philadelphia

Planing Machines
 Cincinnati Planer Co., Cincinnati, Ohio
 Cleveland Planer Co., Cleveland, Ohio

Point Thinning Machines
 Oliver Instrument Co., Adrian, Mich.

Polishing and Buffing Machines
 Excelsior Tool & Mch. Co., E. St. Louis, Ill.
 Hill-Curtis Co., Kalamazoo, Mich.
 Hisey-Wolf Machine Co., Cincinnati, O.
 Mail Tool Co., 7780 S. Chicago Ave., Chicago
 Nedco Company, Natick, Mass.
 New Britain Machine Co., New Britain, Conn.
 Standard Electrical Tool Co., Cincinnati, O.

Presses, Arbor
 Atlas Press Co., Kalamazoo, Mich.
 Lourie Mfg. Co., 565 Washington, Chicago
 Nicholson & Co., W. H., Wilkes-Barre, Pa.
 Shadon Machine Co., 2253 Cottage Grove
 Ave., Chicago
 Wilson, R. K., Buffalo, N. Y.

Presses, Broaching
 Lourie Mfg. Co., 565 Washington, Chicago

Presses, Drawing
 Lourie Mfg. Co., 565 Washington, Chicago

Presses, Flanging
 Lourie Mfg. Co., 565 Washington, Chicago

Presses, Foot
 Rockford Iron Works, Rockford, Ill.
 Taylor & Fenn Co., Hartford, Conn.

Presses, Forcing
 Lourie Mfg. Co., 565 Washington, Chicago

Presses, Forming
 Lourie Mfg. Co., 565 Washington, Chicago

Presses, Power
 Hendley & Whittmore Co., Beloit, Wis.
 Lourie Mfg. Co., 565 Washington, Chicago
 Rockford Iron Works, Rockford, Ill.

Presses, Punch
 Leathwaite Mch. Co., T. H., 311 E. 47th, N. Y.
 Rockford Iron Works, Rockford, Ill.

Presses, Screw
 Fall River Grinding & Machine Co., Fall
 River, Mass.
 Jarecki Mch. & T. Co., Grand Rapids, Mich.

Presses, Wheel
 Lourie Mfg. Co., 565 Washington, Chicago

Profiling Machines
 Frew Machine Co., Philadelphia, Pa.
 Oliver Instrument Co., Adrian, Mich.

Pulley Machinery
 Avey Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split
 Conway Clutch Co., Cincinnati, O.
 Jones Foundry & Machine Co., W. A., 4450
 W. Roosevelt Road, Chicago

Pumps, Coolant
 Fuflo Specialties Co., Manchester, O.

Pumps, Hydraulic
 Lourie Mfg. Co., 565 Washington, Chicago

Pumps, Lubricant
 Rothman Machinery Co., Cincinnati, O.

Punch Press Feeds
 Rockford Iron Works, Rockford, Ill.

Punch, Shear and Bender, Hand
 Armstrong-Blum Mfg. Co., 341 N. Francisco
 Ave., Chicago

Punches, Hand
 Armstrong-Blum Mfg. Co., 341 N. Francisco
 Ave., Chicago
 Hendley & Whittmore Co., Beloit, Wis.
 Leathwaite Mch. Co., T. H., 311 E. 47th,
 New York
 Whitney Metal Tool Co., Rockford, Ill.

Punches, Power
 Hendley & Whittmore Co., Beloit, Wis.

Punches and Dies
 Hendley & Whittmore Co., Beloit, Wis.
 Leathwaite Mch. Co., T. H., 311 E. 47th, N. Y.
 Rockford Iron Works, Rockford, Ill.

Punches and Shears
 Buffalo Forge Co., Buffalo, N. Y.
 Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Pyrameters
 Wilson-Macaulen Co., Inc., 735 E. 143rd St.,
 New York

Racks, Bar Stock
 New Britain Machine Co., New Britain, Conn.
 Yoke Supply Co., Wm. B., Canton, O.

Reamers, Adjustable
 Cleveland Twist Drill Co., Cleveland, Ohio.
 Schellenbach-Hunt Tool Co., Cincinnati, O.

Reamers, Expanding
 Lambert Mch. & Engin'g Co., Cleveland, O.

Reamer Holders
 Nicholson & Co., W. H., Wilkes-Barre, Pa.

Reels, Extension
 Cincinnati Specialty Mfg. Co., Cincinnati, O.

Riveters, Multiple Spindle
 Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic
 Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machine Equipment
 Linley Bros. Co., Bridgeport, Conn.

Classified Finding Index

Riveting Machines

Canton Pneumatic Co., Canton, Ohio
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Rod Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco
Av., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Tucker, W. W. & C. F., Inc., Hartford, Conn.

Rotary Tables, Hand Feed

Stevens Inc., John B., 27 Cleveland Place,
New York

Safety Stops

Atlantic Co., Box 133, Sta. B., Brooklyn, N. Y.

Saw Sharpening Machines

Huther Bros. Saw Mfg. Co., Rochester, N. Y.
Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand

Read-Proutice Corp., Worcester, Mass.

Saws, Metal Cutting Circular and Band

Huther Bros. Saw Mfg. Co., Rochester, N. Y.

Scraping Machines, Hand & Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric

Hilary Wolf Machine Co., Cincinnati, O.
Vim Tool Co., 149 Broadway, New York

Screw Driving Machines, Automatic

Raynolds Machine Co., Massillon, Ohio

Screw Machine Products

National Acme Co., Cleveland, Ohio.

Screw Machines, Automatic

National Acme Co., Cleveland, Ohio.
New Britain Mch. Co., New Britain, Conn.

Set-Up Appliances

Standard Shop Equip. Co., Philadelphia, Pa.

Shafts, Flexible

Keller Mech. Eng. Corp., 68A Washington St.,
Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chgo.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chgo.

Shafts, Steel

American Hollow Boring Co., Erie, Pa.

Shaping Machines

American Tool Works Co., Cincinnati, O.
Osborne & Sexton Machy. Co., Columbus, O.
Rhodes Mfg. Co., Hartford, Conn.
Smith & Mills Co., Cincinnati
Springfield Machine Tool Co., Springfield, O.

Shears, Alligator

Canton Foundry & Machine Co., Canton, O.

Shears, Hand

Armstrong-Blum Mfg. Co. 341 N. Francisco
Av., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Machine Co., T. H., 311 E. 47th
St., New York
Tucker, W. W. & C. F., Inc., Hartford, Conn.
The Unishear Co., 270 Lafayette, New York
Whitney Metal Tool Co., Rockford, Ill.

Shears, Electric Hand

The Unishear Co., 270 Lafayette, New York

Shears, Power

Hendley & Whittemore Co., Beloit, Wis.
The Unishear Co., 270 Lafayette, New York

Sheet Metal Cutting Tools

The Unishear Co., 270 Lafayette, New York

Slotting Machines

Rhodes Mfg. Co., Hartford, Conn.

Slotting Machines, Screw Head

Stevens Inc., John B., 27 Cleveland Place,
New York

Spacing Washers

Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery

Bradford Machine Tool Co., Cincinnati, O.
Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago
Hilnols Machine & Mfg. Co., LaSalle, Ill.
LaPorte Machine & Tool Co., LaPorte, Ind.
Hazel-Proutice Corp., Worcester, Mass.
Stecher Co., Chan., 2452 N. Greenview Ave.,
Chicago

Superior Machine & Eng. Co., Detroit, Mich.

Speed Reducers, Worm, Spur and

Herringbone

Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago
Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago
Ohio Gear Co., Cleveland, Ohio.

Spindles, Air Driven

Ex-Cell-O Tool & Mfg. Co., Detroit, Mich.

Spindles, Grinding

Ex-Cell-O Tool & Mfg. Co., Detroit, Mich.

Spring Taper Sleeves

Seherr Co., Geo., 144 Liberty St., New York

Spring Winding Tools

Superior Spring Winding Tool Co.,
Milwaukee, Wis.

Sprockets

Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago
Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago
Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber

Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board

Schwerdtle Stamp Co., Bridgeport, Conn.

Stools and Chairs, Factory

Cayo Mfg. Co., Benton Harbor, Mich.
Chicago Wire Chair Co., 919 N. La Salle St.,
Chicago

Stop Motions

Atlantic Co., Box 133, Sta. B., Brooklyn, N. Y.

Straightening Machines

Springfield Machine Tool Co., Springfield, O.
Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Proconier Safety Chuck Co., 15 S. Clinton
St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Ricknell-Thomas Co., Greenfield, Mass.
Proconier Safety Chuck Co., 15 S. Clinton
St., Chicago

Tapping Machines and Attachments

Alto Mfg. Co., 1647 Wolfram St., Chicago.
Avey Drilling Machine Co., Cincinnati
Baker Brothers, Inc., Toledo, Ohio.
Ricknell-Thomas Co., Greenfield, Mass.
Burke Machine Tool Co., Conneaut, Ohio
Frew Machine Co., Philadelphia, Pa.
Hammond Mfg. Co., Cleveland, Ohio
Leland-Gifford Co., Worcester, Mass.
Proconier Safety Chuck Co., 15 S. Clinton
St., Chicago

Rickert-Shafer Co., Erie, Pa.
Whitney Metal Tool Co., Rockford, Ill.

Thread Dies

Colven, J. M., Yonkers, N. Y.

Thread Millers

Seherr Co., Geo., 144 Liberty St., New York
Triplex Machine Tool Corp., 60 Church St.,
New York

Threading Machines

Rickert-Shafer Co., Erie, Pa.

Classified Finding Index

Threading Machines, Automatic, Stud
Grant Mfg. & Mche. Co., Bridgeport, Conn.

Threading Tools
Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago
Zeerman-Clark Mfg. Co., 225 W. Huron St.,
Chicago

Tool Holders
Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago
Western Tool & Mfg. Co., Springfield, O.

Tool Racks
Chicago Wire Chair Co., 819 N. La Salle St.,
Chicago

Tools, Boring
Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tools, Lathe and Planer
Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tools, Machinists'
Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Trucks, Machine Shop
New Britain Machine Co., New Britain, Conn.

Tube Flanging Machines
Grant Mfg. & Mche. Co., Bridgeport, Conn.

Turntables
Canton Foundry & Machine Co., Canton, O.

Turret Tool Posts
Fay & Scott, Dexter, Maine

Universal Joints
American Tool Works, Inc., Hartford, Conn.
Borgeson Mfg. Co., Inc., Torrington, Conn.
Boston Gear Works Sales Company, Norfolk
Downs, Mass.

Used and Rebuilt Machinery
Badger-Packard Mch. Co., Milwaukee, Wis.
Bath & Co., Cyril J., Cleveland, O.
Bennett Mch. Co., 60 Church St., New York
Bernstein & Co., Geo. M., 549 W. Washing-
ton Blvd., Chicago
Broadway Machinery Co., 211 Centre St.,
New York, N. Y.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Carlson Machinery Co., Davenport, Iowa
Central States Machinery Co., 134 S. Clinton,
Chicago
Cincinnati Mch. & Supply Co., Cincinnati, O.
Clinton Mch. Co., 128 S. Clinton St., Chgo.
Co-Operative Mch. Co., Cleveland, Ohio.
Davis Machinery Exchange, Toledo, O.
Detroit Machinery Exchange, Detroit, Mich.
Donahue Steel Products Co., 74th and
Ashland Ave., Chicago
Eastern Machinery Co., Cincinnati, O.
Empire Machinery Exchange Co., Inc.,
Cleveland, Ohio
Easley Machinery Co., E. L., 551 Washington
Bldg., Chicago
Foster Machinery Co., Cleveland, O.
Harris Bros. Co., 35th & Iron, Chicago
Haskell Mch. Co., Detroit, Mich.
Hill, Clarke & Co., 649 W. Washington
Bldg., Chicago
Hyman & Sons, Joseph, Philadelphia
Indianapolis Mch. & Supply Co., Indian-
apolis, Ind.
International Mch. Co., Detroit, Mich.
Johnson & Sons Machinery Co., Wm. G.,
St. Louis, Mo.
Jones Machine Tool Co., Cincinnati, O.
Kinney Co., E. A., Cincinnati, O.
Klauber Mch. Co., E. L., St. Louis.
Little Co., W. P., Cleveland, O.
Lucas & Son, Inc., J. L., Bridgeport, Conn.
McCabe Lathe & Machinery Corp., J. J.,
119 Broadway, New York
McDonald Machinery Co., St. Louis
Manning, Maxwell & Moore, Inc., 37 No.
Jefferson, Chicago

Used and Rebuilt Machinery—Cont.
Marr-Galbreath Mch. Co., Pittsburgh, Pa.
Midland Equip. Co., 400 S. Clinton, Chicago.
Marsh Mch. Co., A. H., Cleveland, O.
Mid-West Machine Tool & Supply Company,
Davenport, Iowa
Miles Machinery Co., Saginaw, W. S., Mich.
Mellor Mch. Co., Chas., 118 S. Clinton St.,
Chicago
Morey and Co., Inc., 406 Broome St., N. Y.
Metch & Merryweather Machinery Co.,
Cleveland, O.
Nelson Machinery Co., Green Bay, Wis.
Norton-Broadway Mch. Co., Cincinnati, O.
O'Brien Machinery Co., Philadelphia
Osborne & Sexton Mch. Co., Columbus, O.
Orlatti & Co., D. C., Cleveland, O.
Palmer-Edwards Co., Flint, Mich.
Peninsular Machinery Co., Detroit, Mich.
Prutton Mch. & Tool Co., D. H., Cleveland,
Ohio

Randle Machinery Co., Cincinnati, O.
Reed-Prentice Corp., Worcester, Mass.
Reeve-Fritts Co., 558 W. Washington, Chgo.
Reliance Mch. Sales Co., Pittsburgh, Pa.
Riverside Machinery Depot, Detroit, Mich.
Rosenfeld Mch. Co., 942 W. Lake St., Chgo.
Russell Machine Co., Pittsburgh, Pa.
Scott-Bansbach Mch. Co., 130 S. Clinton,
Chicago
Selfrest-Elsard Machinery Co., Dayton, O.
Simmons Machine Tool Corp., Albany, N. Y.
Stoehr Machinery Co., Bank Bldg., Chicago
Strafer Machinery Co., Jersey City, N. J.
Strong, Carlisle & Hammond Co., Cleveland
Sun Machinery Co., Newark, N. J.
Syracuse Supply Co., Syracuse, N. Y.
Taylor-Hall Welding Corp., Worcester, Mass.
Toledo Machinery Exchange, Toledo, Ohio
Tubor-Velick & Co., 680 W. Lake St., Chgo.
United Mch. & Supply Co., St. Louis
Wertman Mch. Co., M. A., Cleveland, O.
West Penn Machinery Co., Pittsburgh, Pa.
White Mch. Co., A. D., 108 N. Jefferson
St., Chicago
Winter, Herman L., Philadelphia

Vises, Drilling Machine
Armstrong-Bloom Mfg. Co., 341 N. Francisco
Av., Chicago
Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago
Barker & Co., Wm., Covington, Ky.
Cayo Mfg. Co., Benton Harbor, Mich.
Marsh Machinery Co., A. R., Cleveland, Ohio
Martin Tool & Die Works, J. E., Springfield, O.
Peasman Bros., 707 W. Washington Blvd.,
Chicago
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Vises, Machinists'
New Britain Machine Co., New Britain, Conn.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago
Western Tool & Mfg. Co., Springfield, O.

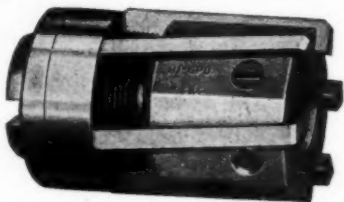
Vises, Milling Machine
Barker & Co., Wm., Covington, Ky.
Hartford Special Mch. Co., Hartford, Conn.
Marsh Machinery Co., A. R., Cleveland, Ohio
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago
Stevens Inc., John B., 27 Cleveland Place,
New York

Vises, Shaper
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Wood Working Machinery
Frew Machine Co., Philadelphia, Pa.
Hendley & Whittemore Co., Beloit, Wis.
New Britain Machine Co., New Britain, Conn.
Porter-Cable Machine Co., Syracuse, N. Y.

Worms
Massachusetts Gear & T. Co., Woburn, Mass.
Jones Foundry & Machine Co., W. A., 4450
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Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production. The range of expansion is from .100" in the smaller sizes to .150" in the larger sizes. Made with High Speed Steel Blades.

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Canton alligator, cap. 14' sq.

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21" C-O & Champion; 22" Barnes;
24" Cincinnati; 25" American; 24" &
32" Mechanics.
Drill, multiple, No. 66-D Moline
"Hole Hog".
Gear hobber, G. & E. No. 1716.
Grinders, emery, St. Louis & W.;
large stock new at 50¢ disc.
Grinders, disc, No. 6 Besly and 14
Gardner; No. 202 Badger.
Grinders, drill, W. & M.; American.
Grinders, plain, 10x36" Norton;
8x36" B. & S.; 12x36" Modern.
Grinders, universal, Nos. 3 Ohio
and 12 B. & S.
Hammer, helve, 40 lb. Bradley.
Lathes, turret, 16" Gisholt, Omar,
Foster, J. & L.
Lathes, No. 5A Potter & Johnston.

Lathes, 16" Monarch; 18" Monarch;
Lodge & Shipley; 26" Putnam; 30"
American; 30" Blaisdell.
Millers, No. 4 Hendey; No. 04
LeBlond; No. 2 Hendey Norton,
universal.
Planer, 42"x42"x10' Pond.
Press, arbor, No. 3 A Geier.
Presses, o. b. i., No. 1 L. & J.
Presses, hydraulic, 36x72" Elmes.
Press, hydraulic, Lourie 200 ton.
Profilers, Putnam; Reed-Prentice.
Punch & shear, No. 52 Beloit
Riveter, 4" Adt; Grant 4-V-3, m. d.
Shaper, 14" Barker 7" Rhodes; 12"
Whipp.
Shears, rotary splitting, No. 134
Marshalltown 4' thrt.; 1" cap.;
No. 13 Pettingell.
Shear, square, 372 Pexto, 10 ga.;
power.
Welders, spot, Agnew 4" capacity.

And many others. Write for list 130.

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37"x12' Bullard.

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28"x16' Niles, q. c. g.
19"x10' Draper, patent head,
and many others.

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34"x25" Pond, triangular pattern.
34"x36" Pratt & Whitney, hollow hex.
19"x7' Fay & Scott, back grd.
No. 22½ Garvin Monitor.
14"x 4' Warner & Swasey.

No. 3 Foster sc. machines 1-5/16" wire feed, (2).
14"x9" Cincinnati-Acme, wire feed.
No. 2 Smurr & Kamen, wire fd., (5).

DRILL PRESSES.

48" Almond, sens. radial, post type.
40" Barnes horizontal radial.

26" Aurora, sliding head.
24" Foote-Burt heavy duty.

MILLING MACHINES.

No. 5 Cincinnati, table 94"x50½".
No. 5 Becker Brainard, vertical.
No. 3 Brown & Sharpe, plain, cone type.
No. 3 Hendey, q. c. g.

No. 3 Becker-Brainard, new model, q. c. g., vertical attachment.
No. 3 Becker universal back geared, quick change geared.
No. 1 Van Norman hand miller.

PLANERS.

48"x37"x9' Sellers, 2 heads.
48"x48"x12' Gray, 2 heads.

48"x36"x14' Cincinnati, 4 heads.
30"x30"x8' American, 1 head.

BORING MILLS.

48" Bullard, 2 swivel heads.
42" Bullard, 2 swivel heads, (2).
Boring mill, No. 1 Sellers hor., 23" bar.
Boring mill, car wheel, 60" Newton.

Boring, drilling and milling machine, Bement-Miles horiz., 43" bar, 14' 6" bet. heads, with revolving table.

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4" & 8" Eaton, Cole & Burnham.

4" Armstrong, No. 00.

MISCELLANEOUS.

Arbor press, No. 3 Greenerd.
Arbor press, No. 8 Greenerd, 36" bet. columns.
Arbor press, 20 ton Weaver.
Centering mche., 5" Whiton, dbl. sp.
Electric hoists, 1-ton cap. (5).
Gear shaper, No. 35 Fellows, straight and helical heads.
Generator, No. 100 Oxweld acetyl.
Grinder, 13½"x5' Landis, universal.
Grinder, No. 8 Diamond, double end, heavy type.
Grinder, disc, No. 17 Besly.
Grinders, double end electric.
Hammers, 15, 25 & 40 lbs. Bradley helve.
Hammers, 50 lb. Little Giant.
Hammers, 60 lb. Bellefonte upright, 2.

Molding machines Tabor (9).
Presses, Waterbury-Farrel d. a., 24" 5" strokes, 28" bet. housings, auto. roller feed, with cut-off attach., wt. 26000 lbs., new, (3).
Punch or gate shears, 72" Cleveland multiple, 16" throat.
Punch presses, all sizes, (15).
Riveter, air, 6" gap Allen, cap. 11".
Riveter, air, 6" gap Allen, cap. 8".
Saw, No. 6 Nutter & Barnes (2).
Saw and column facer, Q. M. & S. No. 4-B universal, 31" blade.
Shear, 8' Ohl, No. 20 ga.
Slotter, 14" Niles.
Tire press, hyd., 60-ton Defiance.
Tooth rounding machine, S. & S.
Woodworking machines (5).

Send for complete catalog and price list.

USED AND REBUILT MACHINERY

FOR SALE BY

West Penn Machinery Company

1208 House Building,

Pittsburgh, Pa.

Air comp., 8"x8" Bury "BB", 79 c.f.
 Air comp., 8"x8" I.-R. E.R.-I. 138 c.f.
 Air comp., 10"x10 I.-R. N.-E.-I. 179 c.f.
 Air comp., Bury, duplex, 815 c. f.
 Automatic, No. 55 Nat. 4-spindle.
 Automatic, 24" Cleveland Model A.
 Bolt cutters, 14", 2", 24" 4" Landis.
 Bolt cutters, 14", 2" Landis, dbl. hd.
 Bolt cutters, 14", Landis, 3 hd., m. d.
 Boring mills, vertical, 30" to 16".
 Boring mill, 60" Gisholt, r.p.t. m.d.
 Boringmill, 84" Bickford, m.d. 95 new
 Boring mill, horiz. 4-spd., Newton.
 Boring mill, horiz. 6 spd. Niles.
 Brake, 8"x16 ga. Robinson.
 Brake, press, 12"x14" Cincinnati.
 Brake, press type, 10' 6" Ohl, 10 ga.
 Bulldozer, No. 4 Williams & White.
 Bulldozer, Nos. 25 and 28 W. & W.
 Drills, 14" to 38".
 Drill, No. 2 Colburn.
 Drill, 2-sp. b. b. Elmore, 1", sens.
 Drill, mult., No. 5 Fox, 10-spindles.
 Drill, American, 4", radial, t. a., b. d.
 Drill, radial, 6' Prentice, s. p. d.
 Flanger, McCabe, 4" capacity.
 Gear cutters, spur and bevel.
 Gear cutter, 48" Newark, b. d.
 Gear hobber, 78" S. & S. m. d.
 Gear planer, 24" Gleason, bevel.
 Grinder, 14"x14", 220 v. a. c.
 Grinder, 6"x32" P. & W. univ., b. d.
 Grinder, 10"x52" Norton, univ., b. d.
 Grinder, 12"x32" Landis, univ., b. d.
 Grinder, 12"x96" Norton, b. d.
 Grinder, No. 4 Besly, disc.
 Grinder, plain, 16"x72" Landis.
 Grinder, planer type, 51" Springfield.
 Grinder, face, 84" Diamond, m. d.
 Grinder, surface, No. 16 Blanchard.
 Grinder, tool & cutter, No. 2 Cinti.
 Hammer, 65-lb. Champion, upright.
 Hammer, 80-lb. Bradley, cush. helve.
 Hammer, 100 lb. Bradley, upright.
 Hammer, 150-lb. Dupont, upright.
 Hammer, 200-lb. Bradley, upr. helve.
 Hammers, Nos. 2-B, 3-B, 4-B Nazel.
 Hammers, steam 600 lb. to 6000 lb.
 Hammer, 2500-lb. Bement, sgl. fr.
 Hoists, 1 to 34-ton Shepard, 220 v.
 Keyseater, No. 2 Mitts & Merrill.
 Lathes, 12" to 60".
 Lathe, 13"x48" South Bend, b. d.
 Lathe, 36"x30" American, b. d.
 Lathe, Lo-Sw., 34"x60" Fitchburg.
 Lathe, brass, 18"x6" Fox.
 Lathe, turret, No. 4 W. & S.
 Lathe, turret, No. 6 W. & S., p. f.
 Lathe, turret, 24" Steinfle.
 Lathe, turret, No. 4 Foster.
 Miller, plain, No. 4 Cinti. 14" d. h.
 Miller, univ., No. 4 B. & S. 12" d. h.
 Miller, slab, 24"x20"x14" Ingersoll.
 Pipe machines, 2" to 12".

Planer, 48"x42"x12' Cincinnati, 2 hds.
 Planer, 56"x56"x16' Cin. rev. m. d.
 Planer, 72"x72"x20' Bement-M. 4 hds.
 Planer, o. s., 48"x48"x14' D. & H.
 Planer, o. s. 96"x72"x26' D. & H.
 Planer, rotary, 48" Niles, m. d.
 Press, hyd., 60-ton Watson-Stillman.
 Press, hyd., 50-ton Lourie.
 Press, No. 20 Bliss o. b. i.
 Press, geared, No. 34 Toledo.
 Press, No. 37 Bliss, s. s., 6" stroke.
 Press, No. 74 Bliss, s. s.
 Press, No. 78 Bliss, t. r. 12" stroke.
 Press, wheel, 150-ton Caldwell.
 Press, wheel, 400-ton Niles.
 Punch, hor., Cleveland, 1" thru 1".
 Punch, hor. Nos. 2 and 3 H. & J.
 Punch & sh., 30" Rock-River 1/2", 1".
 Punch & s., No. 2 L. & A. 12" thru arch j.
 Punch No. 1 L. & A. 30" thr., 1 1/2".
 Punch, No. 5 H. & J. 2 1/2", 1 1/2", m. d.
 Riveter, Hanna, 18" thru, 15" gap.
 Rolls, angle bend., 2"x2"x1/2" Bertsch.
 Rolls, angle bend, 3"x3"x1/2" Buffalo.
 Rolls, angle bend, 4"x4"x1/2" Champ.
 Rolls, bending, 42"x14 ga. Bertsch.
 Rolls, bending, 54"x14" Cincinnati.
 Rolls, bending, 8"x1/2" Bertsch.
 Rolls, bending, 10"x1/2" Cleveland.
 Rolls, bending, 12"x1/2" H. & J.
 Saw, metal band, 26" Crescent.
 Saw, cut-off, Yates double end, new.
 Saw, friction, Ryerson, Nos. 2 & 3.
 Saw, hack, No. 7 Atkins, 8"x8".
 Saw, hot, 54" Mesta sliding frame.
 Sawslinger, 11' tractor type.
 Shaper, 16", 20" & 24" Gould & E.
 Shaper, 24" Stockbridge.
 Shear, angle, L. & A., 6"x6"x1/2"
 Shear, alligator, Garrison, 14" sq.
 Shear, alligator, No. 5 Canton, 3" sq.
 Shear, alligator, United, 6"x6".
 Shear, bevel, Lennox 1".
 Shear, 20"x16" ga. Bliss power.
 Shear, sq. 36"x16 ga. Niagara, b. d.
 Shear, squar. 42"x3/16" Canton, b. d.
 Shear, sq. 72"x14 ga. Bertsch, b. d.
 Shear, sq., 16"x3/16" W. & R., m. d.
 Shear, 10"x1/2" Morgan, 24" gap.
 Shear, 12"x14 ga. Peerless, 95 new.
 Shear, plate, 84"x1/2" H. & J.
 Shear, plate, 10"x1/2" H. & J.
 Shear, plate, 10"x1/2" H. & J. No. 4.
 Shear, plate, 144"x1/2" H. & J. No. 7.
 Shear, plate, United, 156"x1/2".
 Shear, rotary, No. 6 Quickwork.
 Slotter, 18" Betts, b. d.
 Straightening rolls, Brightman 1'-4"
 Straight'r, 48" United, 16 ga. 13 rolls.
 Straightener, Nat. 60"x14 ga. 17 rolls.
 Straightener, beam, No. 4 H. & J. m. d.
 Swaging machine, 1" Langelier.
 Testing machine, 100,000 lbs.

USED AND REBUILT MACHINERY

FOR SALE BY

Indiana Machinery Co., Corner Murray & Clinton, Fort Wayne, Ind.

Lathe, Niles 24"x14', cone head.....	8300.
Motor, 50 h. p. General Electric, with starter.....	250.
Planer, Niles 48"x48"x14', two heads.....	750.
Planer, Lodge & Davis 24"x24"x6'.....	300.
Radial drill, Niles 6', full universal, motor driven through gear box.....	750.
Radial drill, Niles, 5', full universal, single pulley, gear box drive.....	650.
Radial drill, American 3', cone drive.....	400.
Radial drill, Fosdick 24', cone drive.....	250.

FOR SALE BY

Davis Machinery Exchange, 1-3-5 So. St. Clair St., Toledo, Ohio

Air compressor 4x5 Ingersoll-Rand.	Lathe, 24"x12' American q. c. g., heavy duty.
Air compressor, 6x6 Chicago pneumatic, tank.	Lathe, engine, 14"x8' Walcott, q. c. g., chuck.
Air compressor, 6x5 Ingersoll-Rand.	Lathe, 19"x14' LeBlond q. c. g., ck.
Band saw, 10" Napier metal cutting.	Lathe, engine, 17"x8' Oliver, q. c. g. chuck.
Bolt threader, 1 1/2" Landis.	Lathe, engine, 34"x12' Greaves-K., l. c. g.
Bolt threaders, 1 1/2" and 2" National.	Mill, No. 4-B Becker vert., c. pulley
Brake, 8' Chicago, cap. 18 ga.	Mill, No. 3V Toledo vertical, s. p. d.
Drill, 20" Barnes camel back.	Mill, No. 1 Cincinnati plain, cone pulley, geared feeds.
Drill, 30" Rockford, b. g. and p. f.	Mill, No. 2 Cincinnati plain, cone pulley, geared feeds.
Drill, 20" Champion, b. g. and p. f.	Mill, No. 1 Kempsmith plain, c. p.
Drill, 20" Barnes, 4-spindle.	Mill, No. 2 Kempsmith plain, c. p.
Drill, Leland-Gifford high speed, motor drive.	Mill, 24" Bullard vertical boring, side head.
Drill, No. 310 Baker hvy. duty, (2).	Mill, No. 6 Whitney hand.
Drill, 4' Hammond hinged arm radial.	Miller, Fox hand.
Drill, 3' gang radial, tapping attachment, universal table.	Press, arbor, No. 28 Atlas.
Drill, 16" Kern hi-speed.	Press, arbor, No. 3 Greenerd.
Drill, 4-spindle Foote-Burt rail.	Press, No. P1 Ferracute s. b.
Drill, 6-sp. Nat. Acme horizontal.	Press, No. P2 Ferracute s. b.
Forming rolls, 46" Pettingell hand.	Press, No. 4 Adriance o. b. i.
Grinder, No. 1 Greenfield plain.	Press, No. 4 Toledo o. b. i., flywheel.
Grinder, 24" Diamond dbl. end disc.	Shaper, No. 90D Toledo dbl. crank, flywheel, size of bed 24"x36".
Grinder, No. 19-53' Besly vert. disc.	Screw machine, No. 1 Warner & S.
Grinder, 8"x18" Ott.	Screw machine, No. 1 Garvin hand.
Grinder, No. 60 Heald cylinder.	Screw mche., 1/2" Pratt & Whitney.
Grinder, No. 1 Fraser cylindrical.	Shaper, 10" Gould & E. crank.
Grinder, Walker universal.	Shaper, 16" American crank b. gr.
Grinder, No. 2 Grand Rapids tool and cutter.	Shaper, 20" Kelley crank, back grd.
Hack saw, 6"x6" Racine power.	Shaper, 20" Mattison crank, b. g.
Hack saw, 6"x6" Marvel power.	Shaper, 24" G. & E. crank, b. g.
Hammer, 500 lb. Mayer upright.	Shaper, 26" Smith & Mill crank, b. g.
Hammer, 1/2" Schuster riveting.	Shear, Yoder circular, m. d.
Hammer, No. 1-B High Speed riveting, m. d.	Shear, No. 136 J. M. Robinson pwr. square, cap. 36"x18 gage.
Keyseater, No. 0 Mitts & Merrill.	Shear, No. 172 Niagara power sq., cap. 72"x18 gage.
Keyseater, No. 2 Davis.	Turret, lathe, No. 5 Foster, power feed to turret and cross-slide.
Keyseater, No. 2 Baker.	Turret lathe, No. 7 Foster, power feed to turret and cross slide.
Lathe, 12"x8' Hendey q. c. g.	Welder, Taylor spot, 50 k. w., 60 cy., 440 v.
Lathe, 14"x8' Monarch q. c. g., chuck	Welder, 10 k. v. a. Winfield spot, 60 cycle, 440 volt.
Lathe, 16"x8' Monarch q. c. g., chuck	
Lathe, 16"x8' Monarch q. c. g., chuck	
Lathe, 22"x9' National quick change geared, chuck, g. h., s. p. d.	
Lathe, 18"x10' American q. c. g., ck.	
Lathe, engine, 18"x7' Lehmann, q. c. g., chuck.	

USED AND REBUILT MACHINERY

FOR SALE BY

Scott-Bansbach Machinery Co., 130 So. Clinton St., Chicago, Ill.

Auto. screw mach., Cincinnati, 5-spindle, 1"	\$ 750.
Auto. screw mach., 1 1/2" Gridley 4 spindle model F	1,150.
Auto. screw mach., 2 1/2" Gridley 4 spindle model F	2,500.
Auto. screw mach., Cleveland, 1/2", Model A	150.
Bolt cutter, 2" D. & H., double head	300.
Boring mill horizontal 4" Rochester floor type, rot. table, motor drive, rapid power traverse	4,500.
Centering machine, Whiton swivel	75.
Drill, 21" Cincinnati sta. head, with tapping attachment	200.
Drill 24" Cincinnati sliding head with tapping attachment	325.
Drill, 1-spindle Allen h. s., b. b., 14" with pump	175.
Drill, 4-spindle Barr, plain bearing	225.
Drill, radial, 3" American sensitive	200.
Drill, radial 4" Bickford gear box drive, tapping attachment	1,150.
Drill, 30"-2-spindle Hoefler power feed	250.
Drill, 28" Superior, sliding head, back geared	325.
Filing machine, Cochrane-Bly, floor type	100.
Grinder, 26" Valley City disc	250.
Grinder, No. 65 Heald, with fixtures, b. b. spindle	900.
Grinder, No. 1 1/2 Cincinnati cutter and tool	450.
Grinder, new No. 2 Acme full universal cutter and tool 1400 lbs.	500.
Grinder, No. 3 Norton universal cutter & tool, p. f.	450.
Grinder, No. 11 B. & S. plain 6"x32"	400.
Grinder, Landis 16"x42" crank shaft, 24" wheel	1,500.
Grinder, 12x12x48 Springfield Brandes mag. chuck & segment wheel	2,000.
Hammer, 50 lbs., No. 1 Standard drop	150.
Hammer, No. 5A High Speed riveting	400.
Lathe, 14"x8" Flather, quick change, taper and chuck	250.
Lathe, 18"x9" Chard semi-quick change gear	400.
Lathe, 19"x11" Chard, semi-quick change gear	425.
Lathe, 22"x10" Davis quick change	500.
Lathe, 42"x20" Fifeild with blocks to swing 60"	1,500.
Miller, Whitney, Standard and U. S., hand	125.
Miller, No. 3B B. & S. heavy duty, all geared head, s. p. d.	2,000.
Miller, Briggs, G & E. manufacturing, 16"	200.
Miller, No. 3 Becker vertical	325.
Miller, No. 5 Becker vertical, no rotary	500.
Miller, No. 7 Becker, Lincoln type	150.
Miller, No. 21 Garvin power feed, oil pump	150.
Miller, Hendey, Lincoln type	100.
Miller, No. 12 Brown & Sharpe production type	150.
Miller, Ingersoll slab, 42"x36"x9"	1,750.
Oil separator, National, about 1/2 bushel	75.
Planer, 24"x24"x6" Cincinnati, 1 head	500.
Planer, 26"x26"x6" Cincinnati, 2 heads	650.
Planer, 24x24x6 Fitchburg, 1 head	400.
Planer, 32x32x8 Pond, 1 head	750.
Press, No. 5 R. & K. o. b. l., 5500 lbs.	825.
Press brake, 10' Ohl power, No. 10 gauge	1,650.
Saw, 6x6 Peerless h. s., d. c. motor \$150, a. c. motor	175.
Saw, Racine metal band, nearly new	175.
Screw machine, P. & W. 1/4x4, complete	150.
Screw machine, No. 7 Foster 2 1/4", p. f. f. h.	750.
Shaper, 14" Davis, crank, single geared, vise and c/s	325.
Shaper, 16" Steptoe, crank, back geared, vise and c/s	375.
Shaper, 16" Smith & Mills, back geared vise and countershaft	450.
Shaper, 20" Steptoe, crank, back geared, vise and c/s	500.
Shaper, 20" Cincinnati, crank, back geared, vise and c/s	850.
Shaper, 20" Ohio, crank, back geared, vise and c/s, nearly new	1,000.
Shaper, 25" Steptoe, crank, back geared, vise and c/s	750.
Shaper, 24" Rockford universal combination	1100.
Slotter, 12" Putnam universal	1,000.
Turret lathe, No. 4 Briggs 1 1/2" friction head, full equipment	250.
Turret lathe, 24" Steinlee, 5/8" hole, side carriage	700.

USED AND REBUILT MACHINERY

FOR SALE BY

General Machinery Corporation,

170 Summer St., Boston, Mass.

Drill, Barnes friction.
Drill, Sibley 24" slid. hd., b. g., p. f.
Forge, American No. 2 gas.
Furnace, oven American No. 16.
Lathe, Hardinge No. 47 bench, 4" cap., c. r.

Lathe, turret W. & S. 14" a. c. pl. hd.
Miller, Burke No. 2 bench with p. f.
Press, Bliss No. 194 flywheel.
Press, Niagara No. 2 flywheel.
Shear, Bliss No. 105 rotary.

FOR SALE BY

Marr-Galbreath Machinery Co.,

58 Water St., Pittsburgh, Pa.

Air comp. 8x6, dble cyl. Gardner.
Air comp., 4 1/2 x 4 1/2 Curtis, 24 cu. ft.
Arbor press, No. 5 Atlas.
Blowers & exh., 6, 8, 9 & 16" opening.
Brake, 4' x 18 ga. D. & K. hand.
Brake, 8' x 12 ga. Power, Chicago.
Burnishing barrel, 24" x 16" glass lined
Cold header, 1" W-F., solid die.
Cold header, 3/4" W-F., solid die.
Cold saws, Nos. 11 1/2 and 12 Higley.
Draw bench, 40" W-F., 50 h. p. mtr.
Drill, 20" Prentice, plain.
Drill, 28" Superior, b. g., s. h.
Drill, radial, 30" Taylor & Fenn.
Drill, radial, 7" Prentice, s. p. d.
Drill, radial, 5" Prentice.
Drills, radial, 3' & 3 1/2' Bickford.
Flanging mch. Sievert, 10 ga. hand.
Furnaces, oil tempering, 10" x 10" x 10".
Gear and pinion cutter. No. 3 Sloan.
Grinder, No. 1 Norton universal tool and cutter.
Grinder, No. 3 Brown & Sharpe univ. cutter & reamer.
Grinder, No. 11 B. & S., plain.
Grinder, surface, No. 1W. & M., m. d.
Grinder, 12" Bristol, rotary surface.
Grinder, d. e. safety, 16" x 3" wheels.
Hack saws, 8" Atkins, mtr. 1/60/220.
Hammer, 40 lb. & 75 lb. Bradley.
Hammer, 2-B. Nazel, belt and motor
Hammer, 2500 lb. Chbg., s. f. steam.
Hammers, s. f. 600, 1100, 1500 lbs.
Hammer, 1000 lb Chbg., steam drop.
Hammer, 250 Chbg. board drop.
Hoists, air, 700, 800 & 1300 lbs.
Keyseaters, Nos. 0 and 2, M. & M.
Keyway cutter, 24" Morton, cap. 2 1/2".
Lathe, 9' x 3' Shepard, speed.
Lathe, 15' x 6' Sidney, q. c. g.
Lathe, 16' x 7' So. Bend, with chuck.
Lathe, 18' x 8' Cisco, q. c. g.
Lathe, 20' x 8' Am. q. c. g., chuck \$250
Lathe, 16' x 10' Monarch, grd. hd., t. a.
Lathe, 20' x 10' Schellenbach, g. h. t. a.
Lathe, 21' x 14' LeBlond, g. h. (Mfg).
Lathe, 22' x 10' Hamilton, g. h., s. p. d.
Lathe, 36' x 64' Bridgeford gun bor.
Lathe, 20' x 10' Sidney, q. c. g., t. a.
Lathe, pattern maker's, 24' x 11'
Millers, No. 3 Cin. pl. geared feeds.
Miller, No. 0 Kempsmith univ.

Miller, vertical, No. 3 Becker, cone,
Motor, 15 h. p., 3/60/220/870.
Motor, 7 1/2 h. p., 3/60/220/1800.
Motor, 10 h. p. Century, 3/60/220-1160.
Motor, 10 h. p. a. c., 3/60/220/1740.
Motors, 20 & 50 h. p., 3/60/220/900.
Motor, 20 h. p., 3/60/220/1800.
Paper splitter, 15" Jacques, bench.
Pipe machine, 4" Williams, m. d.
Planers, 48 x 48 x 20", 3-heads, Gray.
Planers, 33 x 33 x 10", 2-hds., W. & P.
Planer, 20' x 16" x 45" New Haven.
Planer, 22' x 22' x 5' Cincinnati, 1 hd.
Press, No. 3A Bliss, adj. table.
Press, No. 2 Barouth o. b. i., 16,000 lb.
Press, No. 94 Bliss, punch type.
Press, No. 3 Bliss, punch type.
Press, No. 1 Toledo o. b. i., pl. m. d.
Press, No. 14 Stiles (Bliss) plain.
Press, 52 Ferracute, punch.
Press, punch type, United, 15,000 lb.
Press, D. G. 62, Ferracute, s. s.
Press, No. 3 Massillon, trimming.
Presses, No. 87 Niagara, screw.
Punch, 30" thrt., 1" x 1" m. d., s. e.
Punch, Rapid, 20" thrt., 1" x 1" m. d.
Punch, horiz., 1 1/2 x 1"; 13" tht. m. d.
Punch, coping, steel plate, 13" thrt.
36" die space, 2 holes 1" x 1" m. d.
Riveter, Allen jaw, 36" cap. 1 1/2".
Riveter, 1/2" Shuster rotary, belt.
Rolls, bending, 8' x 1/2" Bertsch, d. e.
Saw, Newton, 62" blade, comb.
Saw, Burke, 12" blade, capacity.
Saw table, No. 260 F. & E., (wood).
Screw mche., 10" P. & W. pl., w. fd.
Shaper, 12" Springfield, crank.
Shaper, 16" American, b. g. crank.
Shaper, 26" Smith & Mills, b. g., cr.
Shear, alligator, Canton 2 1/2", No. 4.
Shear, rotary, 12" thrt., cap. 10 ga.
Shear, rotary, No. 3 Niagara, hand.
Shear, rotary bevel, 1/2", m. d.
Shear, squaring, 8' x 14 ga. power.
Shear, squaring, 60" x 14 ga. Canton.
Tumbling barrel, 72" x 18", c. i.
Turbo compres., Spencer 5400 c. f. m.
Turbo-generator, 500 kw, 3/60/2300.
Turret lathe, 13" Gisholt, 24" h. s.
Turret lathe, 2" x 24", Jones & L.
Turret lathe, 18" Warner & Swasey

USED AND REBUILT MACHINERY

FOR SALE BY

Asher Machinery Co., - 217 Centre St., New York, N. Y.

Automatic, No. 0 Brown & Sharpe, serial 1500.....	\$ 650.
Automatic, No. 00 Brown & Sharpe, serial 3253.....	550.
Automatic, No. 2 Brown & Sharpe, serial 1500.....	700.
Grinder, No. 2 Brown & Sharpe universal, fully equipped.....	650.
Lathe, Harding precision, quick change gear, taper.....	900.
Lathe, 34x12, Lodge & Shipley triple b. g., latest type.....	1250.
Press, No. 6 Adriance, o. b. i., weight 5500 lbs.....	700.
Press, No. 21 Bliss, 3" stroke, latest type, new clutch.....	490.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill

MILLING MACHINES.

48" Niles, double head.	No. 2 Rockford plain.
24" Bullard rapid production.	Gooley & Edlund production.
No. 2B Kearney & Trecker univ.,	Garvin duplex production.
incl. vert. and slotting att.	24" Binnse horizontal.
No. 3-B Milwaukee plain, dbl. arm.	24"x8" Ingersoll slab miller.
No. 2 Owen universal.	Large variety smaller sizes.

LATHES.

36"x16' Bridgeford, grd. hd., q. c. g.	18"x 8' Pratt & W. q. c. g., collets.
26"x14' Davis, q. c. g.	18"x 8' Springfield, q. c. g.
26"x13' Wickes, semi-quick chg. gr.	18"x 8' Greaves-Klusman q. c. g.
24"x12' Bradford q. c. g.	16"x 8' Cincinnati, q. c. g., taper.
20"x8' Hendey taper draw collets.	14"x 6' Bradford q. c. g.
18"x10' Davis, q. c. g.	14"x6'-12"x6' Hendeyes, taper draw
18"x 8' Rahn-Larmon, q. c. g.	collets, geared head.

GEAR CUTTERS.

6"x22" Fellows gear threader, m. d.	Brown & Sharpe No. 13 gear cutter.
No. 3 Barber-Colman auto. gr. gen.	4" Waltham auto. gear cutters (4).

RADIALS AND DRILLS

3' American sensitive.	2-sp. Henry & Wright hi-sp., 1" cap.
36" Cincinnati-Bickford.	4-sp. Avey's hi-sp., No. 2.
28" Snyder sliding head.	4-sp. Leland-Gifford hi-sp. No. 2.
24" Aurora sliding head, t. a.	4-spindle Turner turret.
20" Moline, No. 5 Morse taper.	6-spindle Barnes, g. b., p. f.

PRESSES AND SHEARS

8' Toledo square shear, 3/16".	No. 5A Toledo.
5' steel sq. shear, 12 gauge.	No. 5 Consolidated.
52"x16" gap square shear.	No. 1 Consolidated.
1500 lb. W. & W. drop drop hammers.	No. 10 Robinson geared arch 8" str.
300 lb. Beaudry trip hammers.	Smaller shears and brakes.

Large variety and sizes of rotary shears, headers, etc.

SHAPERS AND PLANERS.

18" Smith & Mills crank.	14" Smith & Mills crank.
17" Flather crank.	15" Hendey tool room.
16" American geared crank.	22"x6' Gray planer.

SCREW MACHINES AND TURRET LATHES.

No. 6 Warner & Swasey universal.	Nos. 0 & 2 B. & S. semi-auto.
No. 6 Warner & Swasey tur. lathe.	Nos. 2 & 00 B. & S. tur. formers.
No. 4 W. & S. fox lathe, grd. frict.	3"x1" Clevelands.
No. 4 Warner & Swasey universal.	24" Jones & Lamson (2).
No. 4 Warner & Swasey b. g., fr. hd.	12" Acme b. g., friction head.
No. 2 Warner & Swasey screw mch.	12" & 24" Fosters, univ. and plain.
No. 1 Warner & Swasey screw mch.	Large variety of smaller Fosters,
No. 2 Warner & Swasey h. tur.	Acmes, Garvins, etc.

MISCELLANEOUS.

Bolt cutters, 1", 1 1/2" Landis.	Keyseaters, Nos. 1 and 2 Davis.
Bolt cutters, 1 1/2"-1 3/4" (3).	Tappers, 1/2" Garvin, Pratt & Whitney.
Keyseaters, Nos. 0 & 2 Becker.	1/2" Landis 1/2" Geometric gear cutter.
Large stock of lathes, punch presses, plain and universal grinders, 2 1/2", 4", 5",	
8", 10" power squaring shears, tappers, several hundred Warner & Swasey,	
Potter & Johnston, etc., box, boring tools etc.	

USED AND REBUILT MACHINERY

FOR SALE BY

Nelson Machinery Co.,

123 N. Pearl St., Green Bay, Wis.

Boring mill, 7' Bickford, vert. with 2 swivel heads, cone drive.
 Drill, 3' Wisconsin high speed sensitive radial, tapping attachment, swinging table, finished T slot base, new.
 Drill press, 5' Drees full universal radial, with m. d.
 Pipe machine, No. 14 Jarecki 2½ to 8", q. c., adjustable dies.
 Planer, 36x36x12 Bickett heavy duty, 2 heads on rail.
 Planer, 26" Lynd Farquhar open side, new.
 Riveter, No. 81 Grant rotary, ½ h. p., 3 ph. 60 cy., 220 volt motor.
 Shapers, 16 and 20" Cincinnati crank.
 Turret, 14"x18" Pratt & Whitney.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road,

N. S. Pittsburgh, Pa.

Automatics, ½" Cleveland s. a., (2).
 Automatic, ½" Gridley, cone drive.
 Automatics, Nos. 52 & 53 Acme.
 Bolt cutter, 24" Acme, single head.
 Bolt cutters, ½", ¾", 1-½" single head.
 Boring mill, D. & H., 34" bar.
 Boring mill, Niles horiz., 4½" bar.
 Boring mill, 42" Bullard, 2 heads.
 Boring mills, 51" Bullard, 2 hds. (2).
 Bulldozers, Nos. 3 and 4 Williams & White, b. d.
 Bulldozers, Nos. 27 & 29-U Williams-White, m. d.
 Buffers, 10 h. p., 220-3-60-2600.
 Broach, No. 3 LaPointe.
 Centering mche., Cadillac dbl. end.
 Cutting-off machine, 6" Hurlburt-R.
 Drills, 20" plain feed, (4).
 Drills, 20" and 21" back geared, new.
 Drills, 23", 24", 25" sliding head.
 Drill, 26" Barnes camel back, t. a.
 Drills, radial, 3", 4", 5" and 6".
 Drills, 24" Barnes camel back, t. a.
 Drill, 3" Mueller, s. p. d., gear box.
 Drill, 3-spindle Taylor & Fenn, p. f.
 Drill, P. & W. multiple, 12-1" spdis.
 Drill, D-2 Colburn heavy duty, (2).
 Drill, No. 25 Foote-Burt hvy. duty.
 Drill, No. 25-36" Foote-B. hvy. duty.
 Gear cutter, No. 1 Bilton.
 Gear cutter, 40"x9"G. & E., s. p. d.
 Gear cutter, No. 13 Brown & Sharpe.
 Grinder, 5 h. p. U. S., 220-3-60.
 Grinder, Oliver drill, ½" cap., m. d.
 Grinder, No. 11 B. & S. plain.
 Grinder, 12"x24" Modern plain.
 Grinder, No. 1 Norton univ. cutter.
 Grinder, No. 2½ Bath universal.
 Grinder, No. 5 Springfield planer type.
 Grinder, 7½ h. p. Ransom, 220-3-60.
 Grinder, No. 16 Besley disc.
 Hammer, No. 1AA HighSpeed, m. d.
 Hammers, No. 2-A, h. d. Hi-Speed, m. d., 3 ph., 60 cy., 220 v., (6).

Hammer, 60 & 300 lb. Bradley upr.
 Keyseater, No. 3 Baker, cap. 3".
 Lathe, 12"x10" Davis tool rm., q. c. g.
 Lathe, 14"-28" Fay & Scott gap.
 Lathe, 18"x10" W.-B., g. h., s. p. d.
 Lathe, 19"x12" Sidney q. c. g., t. a.
 Lathe, 16"x8" Sidney q. c. g., t. a.
 Lathe, 27"x18" Reed, bargain.
 Lathe, 30"x12" Boye & Emmes, q. c. g.
 Lathe, 18" Libby turret, s. p. d.
 Lathe, 21" Gisholt turret, (2).
 Miller, No. 2A Milwaukee plain.
 Miller, No. 2 Ohio plain.
 Miller, No. 3 Cincinnati plain, m. d.
 Miller, No. 4 Hendey plain, s. p. d.
 Miller, No. 5-B Becker vertical.
 Miller, No. 5 Becker vertical.
 Nuttappers, Acme ½" 6-sp., semi-auto.
 Pipe mche., E., C. & B., 24" to 8".
 Pipe machine, Merrill, 24" to 12".
 Press, No. 3 Adriance o. b. i., 34" str.
 Press, No. 5 Toledo, o. b. i.
 Press, Ferracute DD2, o. b. i., cam.
 Presses, 3P Ferracute (3).
 Presses, Nos. 19, 20 & 21 Bliss, new.
 Presses, Nos. 3, 4, 5 and 6 Consolidated, new.
 Presses, No. 20 Bliss, No. 5 Toledo, No. 3 Adriance.
 Planer, 24"x24"x8" Powell, 1 head.
 Planer, 30"x30"x8" Powell, 1 head.
 Planer, 33"x33"x12" Cincinnati, 2 hds.
 Planer, 48"x38"x12" Gray, 3 hds., m. d.
 Planer, 48"x48"x14" Betts, 3 heads.
 Planer, 96"x72"x42" N. B. P., m. d.
 Punch, Wickes, 48" thrt., cap. 1½"x1".
 Radial drill, 3 Taylor & Fenn sens.
 Seamers, Bliss, Leffler & Max Ama.
 Separator, Dings magnetic, b. d.
 Shapers, 14" & 20" Ohio single gear.
 Shapers, 16" & 24" Gould & E.
 Shear, 38"x14 gauge Kutscheid squa.
 Shear, 10"x14 ga. Bertsch, b. d.
 Tapper, ½" Webster & Perks, 1-spdl.
 Upsetter, 14" Acme, steel bed.

Our warehouse is full of bargains. What have you for sale?

USED AND REBUILT MACHINERY

FOR SALE BY

A. M. Stoehr Machinery Co.,

Bolt cutter, 3-spd. Acme, 1" cap.
Boring mill, Beaman & Smith horizontal, 5" bar; 48" Colburn, 2 hds.
Drill press, Bausch, dbl. hd., horiz., mult. spd., 16 spds. each head.
Furnace, case hardening, Eclipse gas.
Hammers, 50 lb. Little Giant; 300 lb. Beaudry; 1500 lb. W. & W., board drop, also others.
Presses, R. & K. dbl. ck., 36" bet. column, roller feed, 2 1/2" stroke; No. 1 Bliss, coggle, belt drive.

106 S. Jefferson St., Chicago, Ill.

Planers, 70x60x16' P. & W., 4 heads.
Punch and shears, No. 5 Southwark, 48 throat, arct. jaw; E.F. Cleveland 40" t. and 10 others.
Riveters, 3-A, 4-A & 5-A, high spd.; two Allen Pinch Bug; Rock River, 42" stake, 8" rivets.
Rolls, 14' New Doty, 7/16".
Screw machines, National Acme Nos. 52, 53, 55, 56 and 515.
Shears, Kling splitting, 4" cap.
Wire straighteners, up to 8" cap.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

PRESSES.

No. 723 Toledo double action drawing.
No. 266 Consolidated double action cam drawing.
Lourie hydraulic, 20 & 30 ton.

PLANERS.

24"x32"x 5'
27"x27"x 7' Smith & Mills.

SHAPERS.

16" Steptoe b. g. crank.
16" Kelly b. g. crank
20" Steptoe plain crank.

DRILLS.

36" arm Dreses radial.
42" arm Morris radial.
48" arm Bickford.

MILLERS.

No. 3 Rockford hand.
No. 4 Brown & Sharpe universal.

LATHES.

15"x10' Cisco, q. c. g.
16"x10' Sidney, q. c. g.
24"x10' LeBlond.
24"x16' Lodge & Shipley.

BORING MILLS.

4" Niles horizontal.
30" Gisholt turret head.
34" Gisholt turret head, motor dr.
10' Niles vertical, 2 heads.
42" Niles, 2 heads.

PIPE & BOLT THEADING MACHINES.

1" to 4" Williams.
1 1/2" Standard bolt threader.
2 1/2" to 6" Bignall & Keeler.

SCREW AND TURRET MACHINES.

3"x24" J. & L., geared head.
3"x26" J. & L., geared head.
No. 6 Warner & Swasey cone head.

TRAVELING CRANES.

25 ton 80' span P. & H.
30 ton 80' span Case.

MISCELLANEOUS.

Bulldozer, No. 9.
Furnaces, cyanide hardening.
Oil separator, National.
Punch, horizontal, 1" in 1".
Punches & s. 29" throat, 4" in 4"

Punch & shear, No. 15 Williams-White, 20" throat.
Shear, Lennox, rotary bevel.
Swager, No. 1 Dayton.
Swager, No. 6 Aetna.

USED AND REBUILT MACHINERY

FOR SALE BY

Badger-Packard Mchy. Co., 133-9 W. Water St., Milwaukee, Wis.

Automatic screw machine, 2".....\$100.	Hack saw, No. 7-K Atkins, new.....\$175.
Automatic screw mche., Pratt & Whitney 1/2".....50.	Keyseater, No. 9 M. & M.150.
Automatic screw mche., Pratt & Whitney 1/2".....65.	Keyseater, No. 2 M. & M.240.
Automatic screw machine, New Britain No. 33.....350.	Miller, Hendey Lincoln q. c.75.
Band saw, 30" Wright metal....125.	Miller, production, P. & W.125.
Boring bar, 3 1/2" Kleim.....350.	Miller and drill, Cochrane & Bly No. 14.....750.
Drill, 5-spindle Kern, b. b.200.	Miller, and drill, Demco No. 40 500.
Drill, H. & W. 6-spindle b. b.275.	Tapper, 1/2" St. Louis, new.....125.
Drill, Hole Hog 4-spindle.....450.	Tapper, 1/2" St. Louis, used.....65.
Grinder, Bryant No. 10 with c.s. 350.	Tapper, No. 1 Garvin.....90.
Grinder, Bryant No. 18 with c.s. 350.	Tapper, No. 1 Garvin, m. d.125.
Hack saw, No. 18-S Atkins, new 250.	Welders, Monarch, new.....325.
	Welders, No. 501 Agnew, spot. 280.

FOR SALE BY

Strafer Machinery Company,

14th and Provost St.,

Jersey City, N. J.

BORING MILLS VERTICAL

14' Niles heavy, swing 15' 4".	72" N. B. P. heavy rapid traverse.
96" Cincinnati rapid traverse, m. d.	72" Niles light type low price.
96" Niles light type low price.	60" Cincinnati rapid traverse s. p. d.
72" Betts heavy rapid traverse.	51" N. B. P. speed box 16 speeds.
Portable boring bars, Underwood, 4"x8' with 12" heads, grd. feed \$200 each.	

DRILLS.

5' Prentice speed box drive.	6' Bickford cone type.
4 1/2' Morris s. p. d.	32" Aurora upright.
22" Barnes upright.	20" Prentice upright.

GEAR CUTTERS

No. 5A Lees-Bradner hobber.	No. 2 Bilton pinion cutters.
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GRINDERS.

18"x96" Norton plain, m. d.	24"x144" Landis universal.
12x20 Fitchburg plain.	8"x40" Morse plain, new.

LATHES.

40"x20' Pond blocks to 72"	44"x34' N. B. P. g. h. m. d.
48"x18' Fairfield cone.	22"x10' Drapier cone.
18"x8' Fairbanks 3-step c., d. b. g.	18"x8' Fay Scott 3 s. c., d. b. g.

MILLING MACHINES.

No. 3 Kearney Trecker s. p. d.	No. 3 Pedrick & Ayers plain.
22"x10' slab miller.	No. 1 Brown & Sharpe belt feed.
No. 2 Garvin hand miller.	

PIPE MACHINES.

6" Saunders, new dies, belt drive.	8" Curtis & Curtis, price \$100.
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PLANERS.

10'x10'x30' Niles 4 heads b. d.	36"x8' D. & H. openside 3 heads.
45"x56"x12 Pond.	55"x56"x12' Pond.
40"x32"x12' Cincinnati, 2 heads.	

PUNCHES AND SHEARS.

No. 3 H. & J. 38" t., double.	No. 4 H. & J. double 48" t.
Cleveland 24" t., cap. 1"x1".	10"-3/16" Loy & Nawrath squaring.

MISCELLANEOUS.

Die slotter, Fox.	Roll, 30" tinsmith.
Elevator, d. c. m., portable.	Rotators, 5 and 10 ton.
Generator, 100 k. v. a. Diesel engine.	Ship augers, 500.
Hammer, 400 lb. Chamber, steam.	Slotter, 24" Niles.
Lathes, pattern makers.	Squaring shear, 10'
Miller, Burr spline.	Straightening rolls, H. & J. 1" cap.
Press, forcing, 50 ton Lucas.	Straightener, wire core, to 5/16".
Roll, 8' capacity 1/2"	Trucks industrial storage battery.

USED AND REBUILT MACHINERY

FOR SALE BY

Box 58, c/o Hitchcock Pub. Co., 508 S. Dearborn St., Chicago, Ill.

TAPALOGUE RECORDERS.

Three 4-record Tapalogue recorders and two automatic controller boxes with motor. Temperature ranges of Tapalogues, 400-1800 degrees F. 75-2600 degrees F and 75-2000 degrees F. Temperature ranges of controllers 0-2400 degrees F. These machines are in A-1 condition.

FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, Iowa

Balancer, Gisholt dynamic.
Boring mill, 42" Bullard New Era.
Grinders, No. 10 Brown & Sharpe.
Grinder, 10"x52" Landis, s. p. d.
Grinders, surface, No. 22, Heald.
Hobbers, Nos. 3, 12-B & C.

Lathe, No. 9 LeBlond multi-cut.
Miller, No. 13-B B. & S., production.
Miller, No. 1 Brown & Sharpe.
Miller, 30"x10' Ingersoll, 4 heads.
Planer, 60"x60"x16' Pond.
Radials, 3' Morris, Cincinnati Bick.

Partial list; send us your inquiries.

FOR SALE BY

Randle Machinery Co.,

1733 Powers St., Cincinnati, Ohio

Air compressor, 7½x6 Chicago nsb.
Air compress., 6x6 Worthington, f.v.
Air compressor, 9x8 and 10x10 I-R,
type ER-1.
Bending rolls, 62x3/16" Badger State.
Bending rolls, 7"x1" H. & J.
Bending rolls, Nos. 8 and 9 Bertsch,
motor drive.
Bending rolls, 12"x1" H. & J.
Bending rolls, 16"x1" Niles.
Bending rolls, No. 8 H. & J., m. d.
Bolt cutter, 14" Acme.
Bolt cutter, 1" Acme, 3-spindle.
Bolt cutter, 2" Landis.
Bolt cutter, 4" Acme.
Boring mill, 36" Bullard, r. p.
Boring mill, 42" King & Bullard.
Boring mill, 60" & 72" Bullard.
Boring mill, 60" Bement.
Boring mill, 84" Niles.
Boring mill, 96" Bickford.
Brake, 8"x16 ga. Robinson.
Brake, 8"x10 ga. Robinson, m. d.
Brake, 10"x16 and 10 ga. D. & K.
Brake, 4"x10 ga. Robinson.
Drill, 3½" Mueller, g. b.
Drill, 4" Bickford, g. b.
Drill, 4½" Morris, m. d.
Drill, 6" American, triple geared.
Drill, 2½" Drees belt drive.
Gear cutter, No. 12 B-C.
Gear cutter, No. 18-H G. & E.
Gear cutter, 36" Whiton.
Gear cutter, 18" S. & S.
Gear hobber, Nos. 1 & 3 Farwell.
Hack saw, 6x6, Racine & Peerless.
Hammer, 50 lbs. Little Giant.
Keyseater, Nos. 1 & 2 Davis.
Keyseater, No. 2 M. & M.
Keyseater, No. 3 M. & M., m. d.

Keyseater, Nos. 0 & 3½ Baker.
Lathe, 18"x14" G.-K., l. s.
Lathe, 16"x8" Cisco, q. c.
Lathe, 24"x12" American q. c.
Lathe, 26"x12" Wickes semi-q. c.
Lathe, 22"x18" American s. p. d.
Lathe, 24"x16" L. & S. q. c.
Lathe, 27"x21" L. & S. q. c.
Lathe, 30"x20" Ames.
Lathe, 30"x18" LeBlond, q. c.
Lathe, 36"x27" Johnson.
Lathe, 44"x22" Fifeid.
Lathe, 48"x20" Pond.
Lathe, 54"x27" Pond.
Miller, No. 2 Cincinnati universal.
Miller, No. 28 Oesterlein plain.
Miller, No. 1-B Milwaukee.
Miller, No. 3 B. & S. plain.
Press, No. 8-A Bliss.
Press, No. 21 Bliss, 5" stroke.
Planer, 48x48x14" Gray, 4 heads.
Planer, 60x60x12" Cincinnati, 2 hds.
Planer, 72x72x20" Ridgeway, 4 hds.
Pipe machine, 2" Jarecki.
Pipe machine, No. 5½ Merrill.
Pipe machine, 12" Saunders.
Pipe machine, 8" Williams.
Shaper, 14" and 18" Steptoe.
Shaper, 16" Cincinnati b. g.
Shaper, 22" American, b. g.
Shaper, 24" Steptoe, b. g.
Shaper, 24" Queen City b. g.
Shaper, 24" Hendey, pwr. down feed.
Squaring shear, 36"x18 ga. Niagara.
Squaring shear, 6"x10 ga. Bertsch.
Squaring shear, 6"x3/16" Ohl.
Squaring shear, 60"x16 ga., Pexto.
Wheel press, 150 Caldwell, 35", m. d.,
200 and 400 tons.

Also various other sizes and types.

USED AND REBUILT MACHINERY

FOR SALE BY

Taylor Mfg. Co., Inc., **35 Albany St., Cambridge, Mass.**

Surplus Machinery

Automatics, 1 1/2" Cleveland, 3 hole turrets, (2), each.....	\$ 100.
Grinder, No. 75 Heald.....	100.
Grinder, 6x18 Landis, No. 11466.....	400.
Grinder, No. 60 Heald cylinder, No. 349.....	250.
Grinder, 10" Norton plain cylindrical, with live headstock att.....	600.
Grinder, small tool.....	45.
Lathe, 8" Sundstrand stub.....	1,000.
Saw table, 27 1/2 x 33 table, 11" saw, countershaft built-in, tight and loose pulleys, dust guard, mitre cutting attachment, R. E. Kidder No. 0.....	60.

FOR SALE BY

The Reeve-Fritts Co., **558-560 W. Washington Blvd., Chicago, Ill.**

Die filer, No. 3 Barry.	Lathe, 14"x6" Bradfoed q. c. g.
Drill, 4' Ryerson radial.	Miller, No. 2 Rockford, plain.
Drill, 14" Leland h. s., b. b.	Miller No. 2 Ford-Smith universal.
Drill, 16" Sipp b. b.	Miller, No. 3 Chicago hd. & power.
Drill, 5 spindle Fox, 1/2" cap.	Planer, No. 3 1/2 Fox, hand or power.
Drill, 6 spindle Henry & W. h. s.	Planer, 24"x24"x6" Rockford.
Gear cutter, No. 98 G. & E. spur & b.	Planer, 24"x24"x6" American.
Lathe, 9x20 Porter-Cable prod.	Press, No. 3-P Am. Can solid bk.
Lathe, 12"x5' Pratt & Whitney tool makers.	Press, No. 0 LaSalle bench.
	Screw machine, No. 2 Foster pl. hd.

FOR SALE BY

M. A. Wertman Machinery Co., **427 Penton Bldg., Cleveland, Ohio**

Brake, Robinson 8' x 10 gauge power brake, new condition, never used.
 Drill, radial, 3 1/2' Western, heavy duty, single pulley drive.
 Drill, radial, 4' Hammond sensitive, tapping attachment s. p. d. or m. d.
 Drill, Henry & Wright 4-spdl., b. b., sensitive 12" overhang, good as new.
 Drill, Demco, ball bearing sensitive 12000 r. p. m. bench type.
 Drill, Snyder 28" sliding head, perfect condition.
 Forging machine, 1 1/2" Acme, iron frame, fine condition.
 Grinder, Landis, 10"x72" self contained motor drive excellent condition.
 Grinder, surface, No. 1 Wilmarth & Motman.
 Hammer, Bradley 500 lb. upright helve, guaranteed good as new.
 Hammer, Beaudry, 200 lb., used very little, belt drive.
 Lathe, LeBlond 14"x6" tool room lathe, taper and collet attachment.
 Miller, U. S. hand miller No. 1.
 Miller, Burr No. 5 keyway miller, 60" table routing attachment, 90% new.
 Milling machine, Brown & Sharpe No. 3 plain, power quick traverse table.
 Milling machine, Milwaukee, No. 2A mfg. type, single pulley drive.
 Milling machine, Garvin No. 2 duplex.
 Milling machine, Ohio No. 3 univ., complete equipment perfect mech. cond.
 Milling machine, Ingersoll vertical, No. 3 s. p. d. good condition.
 Milling machine vertical attachment for No. 3 Kempsmith miller.
 Polishing lathes, double end ball bearing. (5).
 Polishing machine, Blevney vertical, belt polishing machine.
 Press, Ferracute No. P3 punching press, excellent condition, weight 3600 lb.
 Press, Cleveland No. 34 punching press, excellent condition, weight 5000 lb.
 Press, Cleveland No. 52 s. s. trim. with side shear, new condition.
 Press, Cleveland No. 6-1, o. b. i. brand new, weight 3300 lb.
 Press, Toledo No. 3 o. b. i. geared, 4 1/2" stroke, weight 2300 lb.
 Press, Minster No. 2 o. b. i., new, never used, weight 1450 lb.
 Planer, Gray 24"x24"x6", one head, belt drive, very fine condition.
 Thread miller, Coulter hob thread miller, perfect condition.
 Turret lathe, 38" Gisholt complete with tools.
 Turret lathe, 24" Gisholt motor driven, 6 1/2" hole thru spindle.
 Turrets lathes, Warner & Swasey, No. 6 g. f. h. (2).

USED AND REBUILT MACHINERY

FOR SALE BY

E. L. Klauber Machinery Co., 320 South Third St., St. Louis, Mo.

Band saws, 14" motor drive.
Bench drills, motor drive, 110 volt.
Drill presses, 10" to 34".
Drop press, 200 lbs. power lift.
Gear hobber No. 000, S. & S.
Gear miller, automatic, 4" cap.
Grinders, Greenfield cutter & tool.
Grinder, No. 2 Garvin hole.
Grinder, belt and disc, Duplex-B.
Grinders, disc, motor drive.
Grinders, electric bench, $\frac{3}{4}$ h. p. 110 volt a. c.
Lathe, bench, Stark, with collets.
Lathe, 15x6 South Bend.
Milling machine, No. 4 Cincinnati plain, all geared, single pulley dr.

Milling machine, Knight No. 14.
Pinion and wheel cutter, Stark.
Planer, 30"x30"x8" American.
Polishers, New Britain drop head.
Polisher, St. L. No. 7, roller bearing.
Presses, 30 ton Southwark, hydr.
Punch and shear, No. 18 Williams & White.
Screw mches, $\frac{7}{8}$ " Cleveland auto. (2).
Screw machine, No. 56 National Acme 4-spindle.
Tapping machine, No. 6 St. Louis.
Tapping mach. $\frac{7}{8}$ " Montgomery h. s.
Tapping machine, No. 2 St. Louis.
Tapping mche., No. 2 Garvin auto.
Tapping mche., No. 1 Garvin auto.

FOR SALE BY

McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.

Arbor presses, Eames No. 6.
Bolt cutter, Acme single head, 14".
Boring mill, Bickford 96", 2 heads.
Boring mills, 6 Bullard 42" low price.
Broaching machine, LaPointe No. 3.
Chain hoists, 1, $\frac{1}{2}$, 2 and 3-ton.
Demagnetizer, Walker.
Drill, Baush 18-spd.; Moline 32-spd.
Drills, Baker, heavy duty (2).
Drills, Leland-G 1-sp. h.s., b.b. floor.
Drills, Kokomo 1-spindle, Sipp 1 and 2-spd., h. s., b. b.
Drills, 20", 24", 26 & 28" b. g., & tap.
Drills, Prentice 3'; Bickford 4' radials.
Gear hobber, Gould & E. 24".
Grinders, Landis piston, motor drv.
Grinder, Heald No. 60 cylinder.
Grinders, modern internal; Blount 30" wet (3); Heald 3", mag. ck.
Grinders, St. Louis No. 9.
Grinder, Reed-Prentice vert. surf., 2 chucks.
Grinder, Landis 16"x66" crankshaft.
Hack saws, 4x4, 6x6 & 2 Racine Jrs, Atkins 4x4" Marvel No. 2; Racine h. s.
Hammers, Bradley 40 lb. helve; Beaudry 25 lb.
Lathes, Bridgeford 36"x12", q. c. g.; American 30"x10" q. c. g., d. b. g.; L. & S. 36"x16" q. c. g., d. b. g.; American 20"x10"; quick change geared Whitcomb-Blaisdell 22"x8" q. c. g. Monarch 16"x8"; C. & J. 15"x8" all quick chage geared; 40 assorted sizes.
Milling machines, Ohio No. 20 plain. Hendey No. 2 universal; Ohio 34; LeBlond No. 3-H plain; Brown & S. No. 3 plain; B. & S. No. 3-B pl., s. p. d.; American No. 14 plain; Cincinnati No. 3 plain; Becker No. 25 plain.

Milling and drilling mchs., Knight No. 14 with power feed.
Pipe machine, Curtis 3", motor dr.; Merrill 4" belt drive, Jarecki 2"; E. C. & B. 16".
Planers, Gray 28"x28"x6', 1 head; Cincinnati 36"x36"x18' 2 heads; Pond, 36"x36"x12' table, 18' bed, 2 heads.
Punches, W. & W. No. 17 punch.
Punch presses, 4-Consolidated No. 2; Ferracute No. 2-C; Holden No. 58; Bliss No. 62 geared; Ferracute No. 10, b. i., (2) Federal Nos. 1, 2, 3; Toledo horning press; Ferracute horning; Bliss No. 19-C.
Pyrometer, Thwing elec., with rec.
Rolls, Badger 50" Pyramid power rolls, 5" dia. $\frac{1}{2}$ " cap.
Screw machine, Cleveland 24" auto.; P. & W. No. 24 hand; Foster No. 3 hand; Woods No. 2 tilted turret head; Bardons & O. No. 7; National-A. No. 52 auto., 4-spindle, m. d.; Milholland b. g. hand; Foster No. 7 hd. b. g.
Shapers, S. M. 16"; 24" Queen City 24" back geared, American 18" back grd.; American 20" b. g.; G. & E. 16", b. g.; Smith & Mills 29" b. g., s. p. gear box; Nile traveling head; Milwaukee 16" b. g.; Walcott 20" b. g.; S. & M. 21" and 26" b. g.; Cincinnati 24" b. g.
Shears, 60" thrt. rotary slitting, (2).
Shear, Mashalltown No. 134.
Square shears, 42" Niagara 15" gap, and 52" power.
Tapping mch., Garvin No. 2X auto.
Threading machine, Webster & Perks 4-spindle.
Welders, butt, Federal, $\frac{7}{8}$ " rds.

USED AND REBUILT MACHINERY

FOR SALE BY

Syracuse Supply Company, 314 W. Fayette St., Syracuse, N. Y.

Guaranteed NEW MACHINES in original crates at prices below list:
Pipe machine, No. 70 Forbes.

Exceptional values in USED TOOLS:

Bolt threader, Acme 2-spindle, with one head, 4" capacity.
Drill, Barr 4-spindle, 8" overhang.
Grinder, Blount 14x14 wet tool, m. d.
Knife grinder, 30".
Lathe, 8x50 Fitchburg lo-swing.
Lathe, 26"x10" Cooper Bros., \$125.
Millers, Wisconsin hand, (3).
Radial, 5' Dreses, single pulley drive, gear box, \$475.00.

Straightener, No. 24 Corey.
Radial, 5' Pond.
Rip saw, No. 24 Powers, self feed, power.
Screw machine, No. 24 Garvin.
Thread miller, No. 12 Lees Bradner.
Tilted turret, No. 6 Wood.
Turret lathes, No. 4 Foster, (2).
Turret lathe, No. 3 Cincinnati Acme.
Turret lathe, 24x26 Pratt & Whitney.
Turret lathe, 24" Steidle.

FOR SALE BY

Norton-Broadway Mch. Co., Sixth & Baymiller Sts., Cincinnati, O.

LATHES.

36"x20' Bradford, triple geared.
32"x19' Wickes, double b. g.
30"x16' American, q. c.
30"x14' Prentice q. c.
27"x14' Pond, q. c.

13-26"x14' Putnams, semi-quick.
24"x14' Lodge & Shipley, q. c.
28"x10' Boye & Emmes, q. c.
19"x10' LeBlond q. c.
20"x10' Bradford, loose change.

MILLING MACHINES.

No. 24 & 3 LeBlond plain.
26" Oesterlein universal.
No. 3H LeBlond heavy duty, plain.
No. 6 Becker vertical.
No. 12 Brown & Sharpe plain.
No. 13 Brown & Sharpe, plain.

No. 4B Brown & Sharpe heavy duty.
No. 4 Cincinnati universal.
No. 4 Cincinnati vertical sgl. pul.
No. 3 Brown & Sharpe, vertical.
No. 12 Pratt & Whitney, Lincoln type
Owen two-spindle.

BORING MILLS.

24" Bullard New Era type, serial 11469.
36" Niles, 2 heads.
34" Bullard, 1 head.

42" Gisholt, 2 heads.
50" Niles, 2 heads.
6" Gray horizontal.

PLANERS.

24"x24"x6' Ohio.
24"x24"x 8' Pond, 2 heads.
24"x24"x 8' Putnam, 1 head.
32"x32"x 8' Gray, 2 heads.
30"x30"x 16' Gray, 2 heads.
32"x32"x16' Whitcomb, 2 heads.

48"x16' Detrick & Harvey, open side
48"x10' Belmer, 4 heads.
48"x16' Cincinnati, 4 heads.
24"x 8' Smith & Silk, 1 head.
Whitcomb crank planer.

DRILLS AND RADIALS

4-spindle Kokomo, 12" overhang.
3-spindle Henry & Wright, 7".
4-spindle Reed sensitive.
3-spindle Reed sensitive.
6-spindle Reed sensitive.
3' American single pulley, gear box.

3' Morris, single pulley, gear box.
34' Mueller, single pulley.
44' Morris radial, arr. m.d., with mtr.
5' American, semi-univ., sgl. pulley.
5' universal, old style.
6' American plain radial, sgl. pul. dr.

MISCELLANEOUS.

Air compressor, 600' Ingersoll, 2 stage
Automatics, Model B Cleveland (2).
Bending brakes.
Bolt cutter, 2-sp. Acme 14".
Drill 28" Aurora, tapping att.
Gear hobber, Cincinnati.
Grinders, Nos. 4 & 120 Gardner disc.
Hack saw, 10" Massachusetts.
Hammer, Bradley helve.
Hammers, Bradley strap.
Presses, Toledo, Long & Allstater
& Losbough & Jordan inclinable.

Press, 50 ton Lucas forcing.
Press, No. 62 Bliss power.
Press, 150 ton Caldwell wheel.
Punch and shear No. 3 H. & J. d. e.
Shears, 6' 8', 10' power.
Shear, No. 252 Niagara pwr., 6' cap.
Slotter, 20" Dill.
Threading mche., Auto. Mch. Co.
Turret, No. 3-A Warner & Swasey,
serial 100,756.
Turret lathe, No. 4 Warner & S.

More than 300 machines tools in stock.

USED AND REBUILT MACHINERY

FOR SALE BY

United Mchry. & Supply Co.,

Boring mill, 42" Bullard.
Drill, radial, 3' Fostick.
Motor, slip ring, 514 r.p.m., 100 h.p.
Presses, No. 32 Toledo; No. 2 Cons.
Punch and shear, d. e., 4"x4".

1241 Walton St., St. Louis, Mo.

Rolls, 8' and 6' drop end.
Rolls, 45" corrugating.
Sand blast, Pangborn No. 1, type c.d.
Saw, friction, 45" Ryerson a. c. mtr.
Shaper, 16" Smith & Mills.

FOR SALE BY

Bennett Machinery Co.,

Boring mill, 72" Betts, p. r. t.
Boring mill, 60" Niles B. P.
Boring mill, 42" Bullard, 2 heads.
Boring machine, 3" bar, Lucas.
Drill, 25" Weigel, belt drive.
Drill, Henry & Wright, 1-spindle.
Grinder, 14"x36" P. & W. vert. surf.
Grinder, No. 2 Landis, univ.
Grinder, No. 1 W. & M. univ. t. & c.
Grinder, No. 60 Heald.
Keyseater, No. 1 Davis, 1"-1".
Keyseater, No. 2 Catlin, 1"-2".
Lathe, 45"x34" N. B. P., geared hd.
Lathe, 26/48"x14" McCabe, dbl. sp.
Lathe, 26"x12" Greaves-Klusman.
Lathe, 24/33"x14" Pond, belt.
Lathe, 24"x24" Schumacher-B., cone.
Lathe, 18"x10" Monarch, q. c. g.
Lathe, 16"-18"x8" L. & S., q. c. g.
Lathe, 18"x8" Porter.
Lathe, 14"x8" Porter.
Lathe, 12"x8" Hendey, taper, draw.
Lathe, gap, 28/48"x12" Harrington.
Lathe, turret, 14"x18", P. & W.

30 Church St., New York City

Milling mchs., 3B & 1A Milwaukee.
Milling and drilling machines, vert., Nos. 1 and 2 Knight (2).
Miller, No. 3 Becker vertical.
Miller, No. 14-A Garvin plain.
Pipe machine, 8" E. C. & B., belt.
Pipe machine, 8" Jarecki, motor.
Pipe mch., 8" Saunders, belt dr.
Pipe machine, 6" Saunders 24-6".
Pipe machine, 6" Oster belt.
Pipe machines, 2", 4", 6" and 8" Oster, new, belt or m. d.
Pipe machine, 3" Jarecki No. 7B.
Pump, 54"x8x7 Worthington, new.
Punch, 24" L. & A. No. 4 s. e.
Radial drill, 4" Dreses, s. p. d.
Radial drill, 3" American, s. p. d.
Saw, cold 22" blade Gleim, 6" cap.
Shaper, 24" Hollingsworth cone.
Shaper, 24" Hendey friction.
Shaper, 20" Gould & Eberhardt.
Shaper, 16" Gould & Eberhardt.
Shear, 30" Niagara power.

FOR SALE BY

The O'Brien Machinery Co.,

Drill, 6' American univ. radial.
Drill, 4' Fostick plain radial, single pulley drive.
Drill, 32" Aurora, motor driven.
Drill, 30" Snyder sliding head.
Gear cutter, 26" Becker-B. auto.
Gear cutter, No. 24 Whiton, belt dr.
Grinders, 3 h. p., d. c., dbl. end, (5).
Grinder, 12"x36" Pratt & W. surface.
Grinder, 12"x36" Cincinnati univ.
Grinder, 14"x36" Norton plain, belt.
Grinder, No. 2 Norton universal.
Hammer, 2000 lbs. Chambersburg, double frame, steam forging.
Hammer, 1100 lb. N. B. P., sgl. fr.
Hammer, 100 lb. Little Giant, belt.
Hammer, 100 lb. Beaudry belt.
Lathe, 30"x30" Harrington.
Lathe, 28"x26" L. & S., b. d., q. c. g.
Lathe, 26"x30" Pond, with motor.
Miller, Newton duplex, planer type, table 21"x12".
Miller, No. 4 Brown & Sharpe plain.
Miller, No. 4 LeBlond h. d., plain.

113 N. Third St., Philadelphia, Pa.

Milling mchs., No. 3 Garvin duplex.
Pipe machine, 2" Landis, belt.
Pipe machines, Oster portable, gas, drive, all sizes.
Pipe machines, 2", 4", 6", 8" & 12" Oster, Cox, Williams, Eaton-Cole & Burnham and Jarecki makes, belt or motor driven, comp. stock.
Planer, 36"x36"x24", Bement, 4 hds.
Planer, 36"x36"x12" Cincinnati, 2 hds.
Press, No. 734 Bliss trimming press.
Press, No. 37 Niagara, 1100 lb. fly-wheel, solid back.
Punch, No. 14 H. & J. 20" thr. 4x4.
Punch, 26" E. F. Cleveland 14x1.
Punch, No. 1 Royersford double end, 4"x8".
Rolls, 14' bending, belt, drop end, rolls 94" and 84".
Saw, 16" Higeley cold, cap. 4".
Saw, 30" Espen-Lucas, cap. 8".
Shaper, 18" Cincinnati, one traveling head, 2 tables.

USED AND REBUILT MACHINERY

FOR SALE BY

Carlson Machinery Co., Inc.,

Davenport, Iowa

Boring mill, 36" Bullard, 2 heads.
Boring mill, 40" Niles, 2 heads.
Grinder, 10x20 Landis universal.
Grinder, No. 10 Besly, 2 grd. tables,
ring wheel chuck, 3 discs.
Lathe, 8"x38" Rivet bench, 9 collets.

Lathe, 14x6 Lodge & Shipley.
Miller, No. 1 Cleveland pl., s. p. d.
Planer, 16"x4' Hendey.
Press, No. 2 Springfield straightening
Press, No. 1 Marshalltown o. b. i.
Press, No. 4 Toledo plain, o. b. i.

FOR SALE BY

Fitchburg Grinding Machine Corporation,

Fitchburg, Mass.

LATHES.

Putnam 14"x6'.
Greaves-Klusman 18"x8'.

New Haven 32"x12'.

PLANERS.

42"x36"x22" Whitcomb.
22"x22"x6" Whitcomb.
17"x20"x8" Whitcomb.

30"x30"x5" Powell, 2 heads.
4", 4-spindle Radical screw mchc.

TURRET LATHES AND SCREW MACHINES.

3x36" J. & L. chuck equipment,
double spindle.

24x26" Greenlee.
21" Gisholt.

MILLERS.

No. 1 Steptoe.

1—No. 25 Becker.

BORING MILLS.

3"x24" Rockford horizontal.

24" Reed-Prentice horizontal.

FOR SALE BY

Brownell Machinery Co.,

150 Pine St., Providence, R. I.

BORING MILLS.

42" Bullard vertical.

DRILLS.

5' Prentice radial.
36" G. & E., sliding head, old style.

23" Snyder, stationary head.
26" Henry & Wright, sensitive radial

GRINDERS.

No. 11 B. & S., 4x30.
No. 3 B. & S. cutter and reamer.
C-2-T Grand Rapids twist drill.
No. 1 B. & S. automatic surface.

20" Whitney wet tool.
14" Blount wet tool.
No. 26 B. & S. plain grinder.

METAL CUTTING MACHINES.

No. 4 Marvel hack saw 6x6.
12" H. & R. metal cutting band saw.

3" H. & R. cutting-off machine.

MILLING MACHINES.

No. 4-B Brown & Sharpe plain,
42x12x20, s. p. d.
No. 2 B. & S. plain, rack feed.

No. 13-B B. & S. pl., manufacturing.
No. 12 B. & S. plain, manufacturing.
U. S. hand millers.

PLANERS.

30"x30"x8' Powell.
26"x26"x6' Whitcomb-B., 2 hds.

17"x17"x4' Whitcomb-Blaisdell.

SCREW MACHINES.

16" Warner & Swasey, turret lathe, g. f. h.
14" Warner & Swasey, plain head turret lathes.
No. 0 B. & S., wire feed, hand screw machines 2"

MISCELLANEOUS.

Blower, No. 8 Boland.
Cornice brake, 4' double truss.
Drop press, 100 lb. Standard auto.
Gear cutter, No. 2 1/2 Bilton.
Jewelers scales.
Motor, 18 h. p., 500 v., d. c. 840 r. p. m.
Motor, 7 1/2 h. p., 550 volts, 60 cycle,
3 phase, 1750 r. p. m.

Motor, 3 h. p. Fairbanks Morse 550
volts 60-cycle 3-phase 1800 r. p. m.
Press, standard power screw press
7" stroke,
Press, power No. 1 Bliss d. a. cam.
Rolling mill, 12x20 toggle.
Shaper, 24" Hendey friction.
Saw table, double arbor.

USED AND REBUILT MACHINERY

FOR SALE BY

W. H. Hobbs Supply Co., - - - - **Eau Claire, Wis.**

Lathe, 24x12 Lodge & Shipley engine, quick change, 5-step cone, 2½" hole in spindle, compound rest and countershaft.

Pipe machine, 2½" to 8" Williams.

Punch and shear, No. 55 Beloit.

All above in splendid working condition.

Lathe, 3x28 Conradson heavy duty, turret chucking, new.

75 other machines.

FOR SALE BY

Miles Machinery Co.,

Saginaw, W. S., Mich.

Automatic, 24", No. 56 Nat'l-Acme.

Automatics, Nos. 5A & 6A P. & J.

Compressor, 12"x10" Ingersoll-R.

Drill, upright, 28" Cincinnati.

Drill, radial, 6" American enc. head.

Gear hobber, 24"-36" G. & E.

Grinder, 12"x72" Landis.

Grinder, 18"x30"x96" Norton.

Lathe, 52"x16" Pittsburgh.

Lathe, 36"x18" Schumacher & Boye.

Lathes, turret 21" and 24" Gisholt.

Lathe, turret, 34"x36" Acme.

Millers, plain, Nos. 2, 3, 4 Cin'ti.

Miller, univ., No. 1 Kempsmith.

Miller, 18" Cincinnati, duplex auto.

Planer, 30"x30"x12" Cleveland, o. s.

Planer, 32"x32"x12" Niles.

Planer, 36"x36"x12" Cincinnati.

Planer, 42"x42"x14" Gray.

Planer, 48"x48"x12" Pond.

Press, No. 164 Toledo toggle draw.

Punch, 48" thr., 1"x1" Southwark.

Shear, 4" Kling, rotary plate.

Threaders, 1½", 2", 2½" and 3" Acme.

Upsetters, 1" and 1½" Ajax.

Upsetters, 1½" and 2" Acme.

FOR SALE BY

Clinton Machinery Co.,

126-128 S. Clinton Street, Chicago, Ill.

MILLING MACHINES.

34" King boring mill, rapid pwr. fda.

No. 2 Cleveland universal.

No. 1½ American plain.

No. 13 Garvin plain.

No. 1 Dow plain.

No. 0 Steptoe hand.

SHAPERS

24" Milwaukee b. g. crank.

24" American b. g. crank.

21" Smith & Mills crank, b. g.

16" Flather s. p. d. gear box.

16" Barker crank, b. g.

15" Potter & Johnson univ. table.

PUNCH PRESSES.

No. 4 Consolidated, o. b. i. 4" stroke.

No. 4 Toledo, o. b. i.

No. 61 Bliss, s. s. reducing, 4" str.

No. 58 Bliss, s. s. reducing.

No. 3 Consolidated, b. g. o. b. i.

No. 42 Toledo horning, 4" stroke.

No. 4 Cleveland, o. b. i.

No. 19 Bliss, o. b. i. (2).

LATHES.

24"x8" Amer. q. c. g., with tur. g. hd.

20"x12" Fay Scott, s. q. c.

18"x8" Morris q. c. g. taper att. & coll.

16"x8" Lodge & S. q. c. g. taper att.

14"x12" Monarch grd. hd. motor dr.

14"x6" Mulliner q. c. g. tap. att.

14"x6" Davis q. c. g. taper att.

14"x5" Seneca Falls.

14"x6" South Bend.

Hardinge & Moseley bench.

DRILL PRESSES

3-sp. Henry & Wright, b. b. h. s.

3-spindle Reed-Prentice, b. b. h. s.

20-spindle Moline hole hog.

24" Aurora, s. h. b. g. p. f.

28" Superior, s. h. b. g. p. f. 96% new.

22" Barnes b. g. p. f.

24" Prentice s. h. b. g. p. f.

No. 1 Knight milling and drilling.

GRINDERS.

16"x48" Landis crankshaft self con.

6"x32" Norton cylindrical.

Dauber & Kratsch univ. t. & c.

No. 14-30" Besly disc. with press.

Greenfield tool & cutter.

No. 1 LaSalle, (4).

MISCELLANEOUS.

Arbor press, No. 5 Atlas.

Bolt cutter, 1" Landis.

Bolt cutter, 1½" Acme.

Hammer, 30 lb. Bradley comp. m. d.

Hack saw, 6x6 and 9x9 Peerless.

Oil separators, Nos. 1 & 2 American.

Riveting hammers, Nos. 1½ B, 3A & 4A

Screw machines, No. 4 Warner & S.

USED AND REBUILT MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc., - - - **3 Fox St., Bridgeport, Conn.**

BORING MILLS

42" Bullard, serial 6969, 6 h. p. a. c., variable speed motor drive.

GRINDERS

No. 2 Brown & Sharpe surface,
magnetic chuck.

No. 1 Morse universal, new.

No. 2 Morse universal, new.

LATHES

12" x 5' Hendey, yoke head, taper
draw bar.

Lathe, 18x10 Hendey yoke head.

14" x 6" Hendey yoke head, taper
draw bar, reliever.

Lathe, 26"x14' Bridgeford heavy
duty engine, quick change.

MILLERS

No. 2-M Cincinnati universal single
pulley drive, vertical attachment.

18" Cincinnati mfg.

PRESS

400 ton Perkins coining.

SHEAR

D-42 Peck, Stow & Wilcox capacity No. 14 gauge soft steel, new.

SHAPER

24" Stockbridge, cone drive.

MISCELLANEOUS WANTS

WANTED BY

Miller Printing Machinery Co., - - -

Pittsburgh, Pa.

OPENSIDE PLANER

We are in the market for a used 48" openside planer.
Must be in first class condition.

Wood-Working Machinery

For a large list of new and used wood-working machinery and allied equipment, consult **Wood-Working Machinery**—a publication similar to this but devoted to the advertising of saw-mill and wood-working machines. A copy may be had free on application to the publisher.

Hitchcock Publishing Co.,

508 So. Dearborn St., Chicago, Ill.

A Few Listings From a Stock of 2000 "Restored" Machines

Gridley 4-spd. 9/16", 3/4, 1 1/4", 1 3/4".
B. & S. Auto. Nos. 00, 0, 1, 2.
New Britain Automatic Nos. 22 & 23.
P. & Johnston No. 5-A & No. 6-A.
16' Niles Vertical Boring Mill.
16' Niles-Bement-Pond Vertical.
1-12' Niles-Bement-Pond Vertical.
10' Betts Vertical Boring Mill.
10-16' Niles Vertical Boring Mill.
10' Niles Vertical Boring Mill.
96" Cincinnati Vertical.
96" Betts Vertical Boring Mill.
84" Bullard Vertical.
72" N.-B.-Pond Vertical Boring Mill.
72" Colburn Vertical Boring Mill.
1-54" Colburn Vertical.
1-44" Niles-Bement-Pond Vertical.
42" King Vertical Boring Mill.
62" N.-B.-Pond Vertical Boring Mill.
1-7" Bar Newton Horizontal Mill.
5" Bar Barrett Horizontal Boring Mill.
3 3/4" Bar Barrett Horiz. Boring Mill.
10"x10"x20' Bement Planer, four hds.
10"x6"x16' N.-B.-P. Planer 4 heads.
84" Newton Rotary Planer.
72"x72"x18" D. & H. Openside.
48"x48"x14" N.-B.-P. Planer 4 hds.
48"x48"x12" N.-B.-P. Planer 3 hds.
48"x48"x10" Cincinnati Planer 4 hds.
36"x36"x12" D. & H. Openside 3 hds.
1-36"x36"x12" Gray, four heads.
24"x24"x10" W.-Blaisdell tow heads.
28" Queen City Shaper belt drive.
24" Stockbridge Shaper Single Pulley.
20" Stockbridge Shaper Single Pulley.
24" G. & E. Shaper m. d. gear box.
16" Stockbridge Shaper, belt drive.
90" Putnam Wheel Lathe.
72"x58" N.-B.-P. Lathe motor drive.
60"x25" Pond Lathe, motor drive.
48"x22" N.-B.-P. Lathe motor drive.

42"x24" Niles-Bement-Pond Lathe.
42"x39" Putnam Lathe, motor drive.
36"x14" Putnam Lathe, motor drive.
30"x12" Whitcomb-Blaisdell, mtr. dr.
36"x14" Bridgeford Lathe motor drive.
60"-72", B. & S. Gear Cutter.
90" Pratt-Whitney Gear Cutter.
6", 11", 18" Gleason Gear Generators.
96" Gould & E. Hobber No. 96-H.
No. 12 Barber-Colman Hobber.
36-B Gould-Eberhardt Gear Cutter.
36-H G. & E. Hobber.
No. 25 Williams-White Bulldozer.
No. 8 Kling Double Angle Shear.
No. 2 Hiles-Jones Dbl. Angle Shear.
1 1/4" Ajax Upsetter.
1 1/4" & 1 1/2" Acme Upsetter.
No. 3 1/2 Baker Keyseater.
6" Mueller Plain Radial.
6" American Plain Radial.
6" American Universal Radial.
5" Western Plain Radial.
7-spindle Henry-Wright B. B.
4-spindle Rockford Gang.
4-spindle Foot-Burt Rail.
No. 3-D Colburn Heavy Duty.
No. 4-D Colburn Hvy. Duty Dr. (2).
No. 3-A Warner & Swasey Bar.
No. 6 Warner & Swasey Auto Chuck.
No. 4, Warner-Swasey Auto Chuck.
No. 2-A W. & S. Bar and Chucking.
18" Libby Turret.
1 1/2"x18" Pratt-Whitney Turret.
No. 4 Cincinnati Universal Miller.
No. 4 Cincinnati Vertical Miller.
No. 3 Cincinnati Vertical Miller.
No. 2 Knight Duplex Miller.
No. 4 Cincinnati Plain Miller.
No. 3 Cincinnati Plain Miller.
No. 2 1/2 LeBlond Plain Miller.

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Advise Your Requirements

Simmons Machine Tool Corp.

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Unused "Mileage"

In K & T Factory Rebuilt Milling Machines

When you buy a "Milwaukee" Rebuilt you are not buying a used or worn out milling machine — you are buying unused mileage, measured in terms of dependable and accurate service.

Every used machine returned to the factory for rebuilding is stripped to the naked castings — every part is cleaned and checked for wear. The column, knee, saddle, and table are replaned or rescraped and all worn parts of the mechanism replaced. They are assembled on the same floor and by the same experts as new machines, and they carry the new machine accuracy guarantee.

Factory Rebuilt K & T milling machines are like new, but cost much less. Send for catalog 33 and list of rebuilt Milwaukee Millers.

Address: Rebuilding Dept.

KEARNEY & TRECKER CORPORATION

5926 NATIONAL AVENUE

MILWAUKEE, WISCONSIN



Good Rebuilt Machines

—Guaranteed—

BOLT CUTTERS

- 1—Acme $\frac{1}{2}$ ", 2-spd., with lead screw.
- 1—Acme 1", 3-spd., with lead screw.

BROACHES

- 3—Hudson LaPointe No. 1.
- 1—J. N. LaPointe No. 3, double spindle, belt drive.
- 1—J. N. LaPointe No. 3, double spindle, motor drive.

DRILLS

- 2—28" Aurora sliding head.
- 2—21" Cincinnati sliding head.
- 1—24" Kokomo sliding head.
- 1—21" Kokomo sliding head.
- 2—25" Snyder sliding head.
- 1—L. & G. single spindle, h. s., b. b.
- 1—2-sp. Henry & Wright h. s., b. b.
- 1—Allen 4-spindle, h. s., b. b.
- 1—Sipp 3-spindle, h. s., b. b.
- 1—Foote-Burt 14 $\frac{1}{2}$.
- 1—24" Carlton Radial.
- 1—Natco 16-spindle multiple drill, head bored for 16 spindle, equipped with eight 1 $\frac{1}{2}$ " and two 1" spindles, round head.
- 1—Bausch 3-way multiple drill; one head mounted horizontally in the rear, 21 $\frac{1}{2}$ " x 17 $\frac{1}{2}$ " opening bored for 16 spindles; equipped with 9 1 $\frac{1}{2}$ " No. 1 M. T. spindles; R. H. horizontal head 32" wide 21" high opening. Bored for 34 spindles, equipped with 13 1 $\frac{1}{2}$ " spindles. L. H. Horizontal head opening 32" wide and 18" high; bored for 34 spindles, equipped with 12 1 $\frac{1}{2}$ " No. 2 M. T. spindles; 10 extra spindles and brackets with machine; arranged for motor drive.
- 1—Pratt & Whitney Gun Drill.
- 1—2-way Barnes.
- 1—2-way Rockford.

GRINDERS.

- 3—6x32 Norton plain cylindrical.
- 1—10x18 Norton plain cylindrical.
- 1—10x36 Norton plain cylindrical.
- 1—12x72 Landis pl., self contained, motor drive.
- 1—Bath universal.
- 2—Gisholt cutter grinders, motor dr.
- 1—No. 1 Morse Plain.
- 1—Wilmarth-Morman plain cyl.
- 2—Oliver drill grinders, motor drive.
- 1—Oliver drill grinder, belt drive.

GEAR CUTTING

- 1—5A Lees-Bradner Hobber.

LATHES

- 2—16x6 Monarch screw cutting.
- 2—21" LeBlond Manufacturing.
- 2—No. 8 Warner & Swasey Turret.

MILLING MACHINES

- 3—Model C Becker, rotary table.
- 1—18" Cincinnati mfg. knee type.
- 1—Kent-Owens semi-automatic.
- 1—14" Cincinnati semi-automatic.
- 1—18" Cincinnati semi-automatic.
- 2—Pratt & Whitney No. 2 plain.
- 1—Becker semi-automatic duplex.
- 1—Gooley & Edlund, Lincoln Type A
- 1—No. 6 Becker vertical.
- 1—30" Newton C-65A rotary m. dr.
- 1—2M Potter & Johnston automatic.

SHAPERS

- 1—20" Kelly Crank Shaper.
- 1—16" Ohio.

TAPPING MACHINES

- 2—2X Garvin automatics.
- 2—Gateman automatics.
- 2—Rickert & Shafer automatics.

AUTOMATIC THREADING MACHINES

- 2—Rickert & Shafer single spindle horizontal automatics, motor dr.

SCREW MACHINES

- 2—No. 7 Bardons & Oliver.
- 1—No. 8 Warner & Swasey.
- 1—5A Potter & Johnston. 21000 serial.
- 1—2" Model B Cleve., 33000 ser., m. d.
- 1—No. 53 New Britain.

MISCELLANEOUS

- 2—40 lb. Bradley Hammers.
- 1—Knowles Keyseater.
- 1—No. 6 Niagara Geared Press.
- 1—Toledo Butt Welder.
- 1—Wire Straightener.
- 1—Pettingill Bumping Hammer.
- 1—Cochrane & Bly Cold Saw.
- 1—Band Saw.
- Misc. Sheet Metal Machinery.
- 1—Motor Generator Set Westingh'e
- 3— $\frac{1}{2}$ H. P. Motors, 440 v., 60 c., 3 ph.

WOOD WORKING MACHINERY

- 1—2-spindle Buss Ball Bear. Shaper.
- 1—6-spindle Andrews Multi. Borer.
- 1—24" Defiance Planer.

This represents only a portion of our stock, which is changing daily. Let us have your inquiries for whatever you need and they will receive our prompt attention.

PALMER-EDWARDS CO.

906 Leith St.,

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ReMANUFACTURED Quality Ma (ORIGINATED BY US)- MACHINE TOOLS

REG. U. S. PAT. OFF.

OUR GUARANTEE



This is only a partial list. Write for price on any tool you need, whether listed below or not.

Lathes

- 1-66"x21' Putnam.
- 1-66"x16' Lodge & Shipley.
- 1-48"x50' Pond.
- 1-48"x24' Pond.
- 1-42"x50' Putnam Grd. Hd.
- 1-42"x50' American Grd. Hd.
- 1-36"x71' American Grd. Hd.
- 1-27"x14' Reed-Prentice Grd. Hd.
- 5-26"x16' Niles-Bement-Pond.
- 10-26"x16' Bridgeford.
- 5-26"x14' Niles-Bement-Pond.
- 5-26"x12' Bridgeford.
- 13-26"x11' Wickes.
- 40-26"x10' Niles-Bement-Pond.
- 21-26"x10' Canada.
- 15-26"x10' Whitcomb-Blaisdell.
- 44-26"x10' Bridgeford.
- 9-25"x12' LeBlond.
- 1-24"x10' American Grd. Hd.
- 1-24"x10' Cisco.
- 5-20"x22"x16' American.
- 1-20"x12' L. & S. Sel. Grd. Hd.
- 30-20-22"x8' American.
- 1-19"x12' LeBlond Grd. Hd.
- 4-18"x8' L. & S. Sel. Grd. Hd.
- 1-18"x8' Lodge & Shipley.
- 1-14"x8' Pratt & Whitney.
- 1-16"x10' Sundstrand Mig.
- 2-4"x60' Loswing.
- 5-31" Fitchburg Loswing.

Radial Drills

- 1-4' Western Heavv.
- 1-4' Foadick.

Auto. Screw Machines

- 7-No. 6-A Potter & Johnston.
- 2-No. 5-A Potter & Johnston.
- 1-No. 56 National Acme.
- 1-1"x5" New Britain.

Turret Lathes

- 10-24" Steidle; 4-24" Gisholt, M. D.
- 3-21" Gisholt.
- 1-No. 2-B Foster.
- 1-No. 7 Foster, Geared Head.
- 1-No. 3-A Warner & Swasey.
- 2-No. 3 Cincinnati-Acme Univ.
- 7-2-spindle Jones & Lamson.
- 1-18" Acme.
- 3-16" Cincinnati-Acme-Fox.

Vertical Boring Mills

- 1-10' Niles; 1-72" Niles.
- 2-42" Gisholt.
- 1-60" Pittsburg.
- 2-48" Colburn; 1-42" Colburn.
- 1-36" Bullard, Rapid Production.
- 2-36" Gisholt.
- 2-32" King.
- 1-30" Flatther.
- 1-30" Gisholt.
- 2-24" Bullard New Era.

Horizontal Boring Machine

- 1-No. 12 P. & H.
- 1-44" Bar Niles-Bement-Pond.
- 1-44" Bar Gisholt.
- 3-No. 1 Barrett.
- 2-Rockford.

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Machines for Immediate Delivery

Your money back if you return a machine within thirty days. No excuses necessary.

Below, a small section of our stock



Drill Presses

- 2-No. D-31 Fox.
- 1-No. 4 4-spindle Foote-Burt.
- 1-No. 3 6-spindle Foote-Burt.
- 1-4-spindle H. & W.
- 1-2-spindle H. & W.
- 1-2-spindle Sipp.
- 1-22" Barnes, Self Oiling.
- 1-28" Superior.

Gear Cutters and Hobbess

- 1-No. 5 60" Brown & Sharpe.
- 1-No. 4 45" Brown & Sharpe.
- 1-No. 36-H G. & E.
- 4-No. 3-26" Brown & Sharpe.
- 4-No. 12 Barber-Colman.
- 1-No. 6 Fellows.
- 1-18" Gleason.

Milling Machines

- 1-No. 4 Cincinnati.
- 1-No. 4-B Brown & Sharpe.
- 2-No. 3 Brown & Sharpe.
- 2-No. 2 Brown & Sharpe.
- 1-No. 0 Brown & Sharpe.
- 72-No. 25 Becker.
- 2-No. 2-Y Brown & Sharpe.
- 1-No. 3 G. H. Hendey Univ.
- 41-No. 35 Ohio Univ.
- 2-No. 14 Garvin Duplex.
- 4-Type B Briggs.

Vertical Millers

- 1-Model ACS 2-spindle Becker.
- 2-Model SD Becker.
- 2-No. 6 Becker.
- 1-No. 4 Cincinnati.
- 1-No. 3 Becker.
- 1-No. 2 Brown & Sharpe.
- 1-Model CS Becker.

Shapers.

- 1-24" Potter & Johnston, M. D.
- 1-20" Columbia, M. D.
- 1-20" Davis, M. D. 1-16" Columbia.
- 1-16" Gould & Eberhardt, M. D.

Planers

- 1-72"x84"x12' Gray.
- 1-60"x48"x12' N.-B.-P.
- 1-48"x48"x10' Gray.
- 1-48"x48"x16' Niles-Bement-Pond.
- 3-36"x36"x18' Cincinnati.
- 1-36"x36"x16' Rockford.
- 2-36"x36"x8' Ohio.
- 1-36"x30"x20' Whitcomb-Blaisdell.
- 1-30"x30"x 8' Niles-Bement-Pond.
- 1-30"x30"x8' Gray.
- 1-30"x30"x 8' Liberty.
- 2-24"x24"x6' Gray.

Grinders

- 1-26-37 1/2"x96" Norton Gap.
- 1-18"x96" Norton.
- 2-16"x50" Norton.
- 1-14"x72" Norton.
- 4-14"x50" Norton.
- 1-12"x120" Landis.
- 1-10"x120" Norton.
- 1-10"x72" Norton.
- 1-10"x52" Landis.
- 6-10"x50" Norton.
- 1-No. 14. 10"x18" B. & S.
- 4-10"x24" Norton.
- 2-10"x36" Norton.
- 3-No. 12 8x36" B. & S.
- 7-6"x32" Norton.
- 1-12"x36" Cincinnati Universal.
- 1-No. 60 Heald.

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REAL VALUES

RADIALS AND UPRIGHT DRILLS

- 7¹ Foadick Plain, cone pulley.
 6¹ N. B. P. Plain Radial, motor drive.
 6¹ American Tr. Grd. Pl. Radial, g. b. d.
 5¹ American Tool Wks. t. g. Pl., g. b. d.
 5¹ American Triple Purp. Plain Radial, enclosed head, latest type.
 4¹ Foadick Plain Radial, g. b. d.
 4¹ Drees H. D. Pl., Radial, g. b. d.
 4¹ Western Plain Radial, g. b. d.
 4¹ American Triple Geared Plain Radial, g. b. d. (3).
 3¹ Drees H. D. Plain, g. b. d.
 3¹ Morris Plain, gear box drive.
 4¹ Carlton b. b. Sensitive, tapping attach.
 4¹ Hammond b. b. Sens. Radial.
 3¹ American Sens. b. b. Radial, tap. att.
 2½¹ Carlton b. b. Sens. Radial, t. a.
 No. 1 W. F. & John Barnes Horizontal.
 34⁸ & 28⁸ W. F. & J. Barnes Up., latest.
 26⁸ W. F. & J. Barnes Up., t. a., late.
 28⁸ Reed-Prentice Upright.
 36⁸ Aurora Upright Drill, tapping att.
 36⁸ & 32⁸ Aurora Uprights, t. a.
 25⁸ Superior (Kokomo H-S) Up.
 25⁸ Weigle Upright, latest type.
 26⁸ Barnes ALL GEARED.
 25⁸ Snyder Upright Drill.
 24⁸ Cincinnati Bickford Upright.
 24⁸ Milwaukee Upright Drill.
 22⁸ W. F. & J. Barnes Upright, t. a.
 21⁸ Superior (Kokomo Hi-Speed) Up.
 22⁸ W. F. & J. Barnes 4-spindle Gang.
 22½⁸ W. F. & John Barnes 4-spdl. Gang.
 3-spindle W. F. & J. Barnes Gang 26⁸.
 6-spindle 21⁸ Hoefler Gang.
 3-spindle 22⁸ Hoefler Gang Drill.
 6-spindle Acme Horiz. Auto. Drill.
 Allen 1, 2 & 3-spdl. b. b., No. 2 M. T.
 No. 314 Baker Bros. Hvy. Duty.
 No. 220 Baker 2-spindle, H. D.
 No. 1½ Foote-Burt 5-spindle, H. D.
 No. 17 Foote-Burt 3-spdl. hvy. duty.
 Leland Gifford spl. spdl., b. b., No. 1 M. T.
 Avey 2-sp. b. b., No. 2 Morse Taper.
 Henry & Wright 2-sp. b. b., No. 2 M. T.
 No. 2 Colburn Mfg. type, heavy duty.
 No. 12 Pratt & W. Multiple, 8 spindle.
 No. 0 Fox Multiple, 4-spindles.
 No. 1 Fox Mult., equipped with 6 spdl.
 No. 3 Bausch Mult., equip. 19-spdl.
 No. 11 P. & W. Mult., equip. 4-spdl.
 No. 37 Natco Multiple, 14-spindles.

ENGINE AND TURRET LATHES

- 38"x42" Johnson Tr. Grd., t. c.
 32"x26" Pond standard change.
 30"x18" L. & S. s. g. h., q. c.
 30"x16" N-B-P stand. change, late types.
 26"x14" Gleason standard change, t. a.
 26"x12" Pittsburgh q. c.
 24"x12" American Tool Wks. q. c.
 30"x14" Lodge & Shipley, q. c.
 24"x10" G. & K. q. c.
 24"x10" Boye & Emmes q. c. Lathe.
 22"x12" Whitcomb-Blaisdell semi-q. chg.
 20"x11" Chard q. c. taper attach.
 20"x10" LeBlond q. c., taper att.
 18"x10" S.-B. & E. q. c., taper att.
 16"x10" Monarch q. c., taper att.
 18"x14" Johnson q. h., q. c., taper att.
 20"x8" Hendey q. h., q. c., t. a.
 18"x8" Monarch quick change.
 18"x8" LeBlond q. c. Lathe.
 18"x8" Boye & Emmes quick change.
 16"x8" Schumacher & Boye, q. c.
 16"x8", 16"x6" x 14"x6" Lodge & Shipley q. c. Lathes, late types.
 16"x8" L. & S. s. g. h., q. c., t. a.
 16"x6" L. & S. Sel. Grd. Hd., q. c.
 16"x6" LeBlond quick change.
 16"x6" Cincinnati quick change.
 16"x6" Lodge & Shipley q. c.
 16"x 6" Monarch quick change Lathe.
 14"x6" Reed-Prentice, grd. hd., q. c.
 21"x10" LeBlond Rapid Production Mfg. with 4-way turret tool post.
 17"x5" LeBlond Rap. Prod. Mfg.
 9"x14" Porter-Cable Mfg., late.
 Nos. 6 & 9 LeBlond Multi-Cut Lathes.
 No. 1-B Foster Univ. Turret, air chucks.
 3¼"x40" Greenlee Flat Tur., bar equip.
 2¼"x24" Acme Flat Turret, chuck.
 3"x36" J. & L. Turret, chuck equip.
 3"x36" J. & L. dbl. sp. Turret, late.
 34" & 24" Gisholt Turret, t. a., late type.
 21" Gisholt Turret, late type.
 No. 2 Milholland Turret.
 Nos. 2, 4, 6 Warner & S. Turret.
 Nos. 2 & 4 Bardons & O. Turret lathes.

EASTERN MACHINERY CO. 26

We also Buy machinery. /h

Rebuilt and Guaranteed Machine Tools

GEAR MACHINERY AND GRINDERS

18" Gleason Bevel Gear Generators.
No. 5-A Lees-Bradner Gear Hobber.
No. 3 Barber-Colman Gear Hobbers.
No. 12 Barber-Colman, pwr. rap. trav.
18-H Gould & E., Hi-Duty Gr. Hob.
No. 6 Fellows Gear Shaper.
20" Ingle Gear Tooth Rounding Mach.
No. 5-48" B. & S. Auto Spur Gr. Cut.
No. 3, 36" & No. 3, 26" B. & S. Auto.
No. 3-26" Cinti. Auto. Spur Gr. Cut.
Nos. 2 & 3 Wilmarth & M. Auto. Sur.
8" Heald Grinder & Surf., style 200.
No. 0 LaSalle Hand Feed Surface.
No. 22, 12" Heald Rotary Surface.
No. 3 B. & S. Surface, planer type.
No. 3 Rivett Internal Grinder.
Nos. 70 & 75 Heald Internal Grinders.
No. 70 Heald Int., clutch in head.
No. 60 Heald Cyl., late type, complete.
Capital Internal, collet attachment.
No. 4, 23" & No. 8, 40" Gard. Disc.
No. 10-18" Besly Disc Grinder.

No. 120 Gardner Double Disc.
No. 41, 20" Besly Disc, m. d.
14" P. & W. Vert., Surf., b. b. spindle.
No. 16-26" Blanchard Vert. Surf., b. d.
12" P. & W. Vert. Surf., rot. mag. chk.
Walker single stroke Vertical Surface,
10" dia. magnetic chuck.
No. 120 Gardner Combination Disc.
Yankee Twist Drill, cap. to 2" drills.
Oliver Drill Point Grinder, m. d.
6"x32", 10"x24" & 10"x36" Norton Pl.
6"x18", 10"x24", 10"x36", 12"x36" &
10"x52" Landis Pl. Self-Contained.
8"x30" Modern Plain, self-contained.
No. 11 B. & S. Plain, self-cont., late.
No. 2-12"x36" Cincinnati Pl. 95% new
No. 3 Brown & Sharpe Universal.
Bath Universal Grinder, comp. equip.
Gisholt Universal Tool Grinder.
No. 3 B. & S. Univ. Cut. & Reamer,
No. 2 Oakley Univ. Tool & Cutter,
P. & W. Thread Milling Cutter.

SHAPERS AND PLANERS

26" & 20" Kelly H. D., b. g. Crank.
25" S. & M. Hvy. Duty, B. G. Crank.
24" Walcott H. D., B. G. Crank,
helical gears.
20" Milwaukee H. D., B. G. Crank.
20" Stockbridge H. D., B. G. Crank.
20" Amer. H. D., B. G. Crank, S. P.
20" Cinti. H. D., B. G. Crank, S. P.

24" & 16" Barker h. d., b. g., Crank.
16" Smith & Mills B. G. Crank.
16" Hollingsworth H. D., B. G., Crank.
16" American H. D., B. G., Crank.
15" Pratt & Whitney Crank.
15" Hendey fric. grd. Shaper.
42"x42"x12" Cincinnati Tri-Sp., 4 hds.
42"x42"x10" G. A. Gray, 1 head.

MILLING MACHINES

No. 15 Garvin Vert. Spindle.
No. 3 Toledo Vertical, single pulley.
No. 3 Cinti. Hi-Pwr. Vert. s. p.
Becker Model "B" Vert. Continuous.
Becker Model "C" Vert. Continuous.
No. 1A Owens Univ., cone pul. compl.
Nos. 3 & 2 B. & S. Universal, c. p.
Nos. 2 & 1½ LeBlond Universal, c. p.
Nos. 3 & 1 Hendey Universal, c. p.
No. 5 Cincinnati, H.P. Plain, rectangular
overarm, late type.
No. 4 Cinti. H. P. Pl., s. p., p. r. t.
No. 3 Hvy. Ohio Plain, c. p., p. r. t.
No. 3 Brown & Sharpe Plain, c. pulley.
Nos. 3 & 1 Kempnith Pl., cone pulley.
No. 3 Hendey Plain, cone pulley.
No. 3 Cincinnati Plain, cone p.

Nos. 2½ & 2 LeBlond Pl., cone pulley.
No. 2 Cincinnati Plain, cone pulley.
No. 2H Brown & Sharpe pl, cone pulley.
No. 1½ B. & S. Plain, cone pulley.
No. 0½ Cincinnati Plain, cone pulley.
28" Cincinnati Semi-Auto. Duplex.
28" Cincinnati Semi-Auto. Face.
48" Cinti. Auto. Duplex, late type.
24" Cincinnati Automatic, late type.
24" Cincinnati Automatic Duplex.
18" Cincinnati Plain Mfg. Millers.
Gooley & Edlund, Briggs type, Mfg.
No. 7H Becker Lincoln type MFG.
Hendey Duplex Milling Machine.
No. 6 Whitney Hand Miller.
No. 1 Bristol b. b. Hand Miller.
No. 3½ Fox Hand & Power Millers.

(Continued on next Page)

261 Spring Grove Ave., CINCINNATI, O.

What have you to Sell?

Rebuilt and Guaranteed Machine Tools

(Continued from Preceding Pages)

MISCELLANEOUS

Air Compressor, 18x12x12 Worthington, dbl. steam drive, cap. 700 cu. ft.
Air Comp. 8½"x10" Worthington, b. d.
Arbor Presses, No. 5 Greenerd, (5).
Arbor Press, No. 55 Atlas Pwr., b. d.
Automatics, Nos. 52, 53, 54, & 56, National Acme, 4-spindle.
Automatic, No. 5A Potter & Johnston, late type, 21,000 serial, (3).
Automatic, No. 6A Potter & Johnston, late type, 19,000 serial.
Automatics, 14" Fay, s. p. d., (2).
Autos., 2¼", 3¼" Gridley s. s.
Auto., ¾" Gridley 4-spindles.
Bolt Cutters, 1" Acme Class "A".
Bolt Thread. Mch., 1" Landis.
Bolt Thread. Mch., 2½" Landis, l. s.
Bolt Thdr., 1", 1½" Landis dbl.-sp.
Bolt Thdr., 2" Acme dbl.-sp.
Bolt Thread. Mch., 1¼" Acme.
Boring Mill, 51" Bullard vert., 2 hds.
Boring Mill, 42" Bausch vert., 2 hds., power rapid traverse.
Boring mill, 37" Niles Vertical, 2 hds.
Boring Mill, 72" Bick. vert., 2 hd.
Bor. Mill, 36" Bullard Vert. Rap. Pro.
Bor. Mill, 30" Gisholt vert., turret hd.
Boring Mill, 3" Barrett Hor., 3" dia. bar
Boring mill, 3" Lambert Hor. s. p.
Boring Mill, No. 3-A Univ. Hor. 3" bar.
Broach. Mch., Nos. 2 & 3B LaPointe.
Broaching Machines, Nos. 2 & 3 J. N. LaPointe Double.
Broach. Mch., Nos. 2 & 3 LaPointe.
Chuck Mch., No. 23 New Britain Auto.
Chuck Mch., No. 22 New Britain auto.
Chuck Mch., No. 24 New Britain auto.
Chuck. Mch., No. 53 N. B. Auto. d.s.
Die Sinkers, Nos. 2 and 3 P. & W.
Driller, No. 1 P. & W. 2-sp.
Forcing Press, 15 ton Lucas Pwr., b. d.
Hack Saw, 13"x16" Peerless H.S. Pwr.
Hack Saw, 12"x12" Racine H.S. Pwr.
Hack Saw, 6"x6" Peerless H.S. Pwr.
Hammer, 25 lb. Little Giant Trip. b. d.

Hammer, 100 lb. Bliss board drop.
Hammers, 40 & 60 lb. Bradley c. h.
Hammer, 50 lb. Bradley Up., b. d.
Hammer, ¼" Schuster Riveting.
Hammer, No. 4A High Spd. Riveting.
Hammer, No. 3A Hi-Spd. Riveting.
Hammers, No. 1-AA High Spd. Riv.
Hammer, No. 2-A H. S. Riv., b. d.
Hammer, No. 1½B High Spd. Rivet.
Keyseater, No. 0 M. & M., cap. ¾".
Keyseater, No. 1 Baker Bros., cap. 1¼".
Polishing Mch., Blevaney, type "A".
Polish. Lathe, No. 3 Gardner, m. d.
Press, No. 14 Peck-Stow & Wilcox O. B. I. Power, D. A.
Press, No. 3 L. & J. O. B. I., Pwr., New.
Press, No. 65-B Niagara double crank Power, flywheel.
Press, DNo. 2 Ferracute O. B. I. cam, double action.
Press, D. D. No. 2 Ferracute O. B. I. cam, double action.
Press, No. 54-A Toledo O. B. I., Pwr.
Press, No. 19 Bliss O. B. I., Power.
Profilers, No. 12 P. & W. 2-spindle.
Profiler, No. 1 Garvin, 2-spindle.
Punch & Shear, No. 2 L. & A., dbl. end.
Punch & S., No. 3 Hilles & J., dbl. end.
Rivet Spinner, No. 80A Grant.
Rolls, 6" Rock River Power Bending.
Shaper, 10" Pratt & Whitney Vertical.
Shear, No. 662 Niagara 62" Power Gap, Square, 10 gauge capacity.
Shear, 72" Kutachied Power Sq. 12 ga.
Straightening Presses, No. 1 Springfield, bench type.
Tapping Mch., Nos. 1 and 2 Garvin Automatic, back geared.
Threader, No. 3 Lees-Bradner Internal.
Welder, Winfield Automatic Electric Spot, cap. 2 pieces of ¼".
Welder, Winfield Electric Butt, cap. ½" rounds.
Welder, Federal Jr. Auto. Electric Spot, cap. 2 pieces of ½".

Many Others. Send Us Your Inquiries.

We also buy machinery—what have you to sell?

EASTERN MACHINERY CO.
3261 Spring Grove Ave., Cincinnati, Ohio

REAL BARGAINS

- 1-30x10 Niles-Bement-Pond, motor driven Lathe, without motor, q. c. g. fully equipped.
- 1-16x20 Greaves & Klusman Lathe, semi q. c. g. cone pulley drive.
- 1-18x8 Boye & Emmes Lathe, three step cone, dbles. back gears, q.c.g.
- 1-16x9 Lehman Lathe, double back gears, quick change gears, taper attachment, like new.
- 1-16x6 Rahn Larmon Lathe, double back gears, q. c. g.
- 1-16x8 Hendey, Drawing-in attachment, serial number over 9,000.
- 1-16x6 Hendey, q. c. g. cone pulley drive, serial number over 12,000.
- 1-48x18 McCabe Double Spindle Lathe.
- 1-16x8 Reed Lathe, motor drive with D. C. Variable Speed, q. c. g.
- 1-20x6 Reed Prentice, geared head, motor drive with A. C. Motor, heavy duty.
- 1-16x6 Champion Lathe, q. c. g. with taper attachment.
- 1-16x6 Prentiss, single pulley drive, geared head Lathe.
- 1-No. 10 Brown & Sharpe Cylindrical Grinder.
- 1-3x35 Brown & Sharpe Gear Cutter.
- 1-60" Brown & Sharpe Gear Cutter, motor drive.
- 1-No. 70 Heald Grinder.
- 1-6x32 Norton Cylindrical Grinder.
- 1-No. 2 Van Norman Duplex Miller.
- 1-No. 1 1/2 Van Norman Duplex Miller.
- 1-No. 0 Van Norman Duplex Miller.
- 2-No. 5 Becker Vertical Millers, with rotary table.
- 1-No. 1 1/2 Brown & Sharpe Universal Miller.
- 2-No. 3 Cincinnati Plain Millers.
- 1-No. 1 Kempsmith Universal Miller, slotted spindle.
- 1-No. 3 Becker Brainard Plain Miller, motor drive, D. C.
- 1-Knight Milling and Drill Machine.
- 3-24" Barnes Sliding Head Drill Presses, one single pulley drive, two cone pulley.
- 6-No. 4 Toledo Power Presses, inclinable.
- 1-No. 3 Bliss Stiles Flywheel Press.
- 1-No. 20 Bliss Press, Inclinable.
- 1-No. 30 Bliss Arch Press with roller feed.
- 1-No. 1 Cam Bliss Toggle Press, motor drive.
- 1-No. 55 Swaine Styles Punch Press, back geared.
- 1-No. 3 V. & O. Inclinable Press.
- 1-No. 5 Atlas Arbor Press.
- 1-18" Barker Shaper.
- 1-No. 1 Davis Key Seater.
- 1-4" Little Joint Pipe Machine.
- 1-6" Oster Pipe Machine.
- 2-Cincinnati Planers, 1-24x24x6, 1-28x28x8.
- 1-No. 2 LaPointe double spindle Broaching Machine.
- 1-2x24 Jones & Lamson bar and chucking equipment.

Every Machine Is Fully Guaranteed

LARGE ASSORTMENT OF OTHER GOOD USED TOOLS

Broadway Machinery Co., Inc.

211 Centre Street,

New York City

Send Us Your Inquiries

Bath's Guaranteed

Bolt and Nut and Forging Machinery

- $\frac{3}{8}$ "-1"-2"-2 $\frac{1}{2}$ " and 4" Ajax steel bed upsetters.
- 2"-3"-3 $\frac{1}{2}$ "-5" Acme steel bed, upsetters.
- 2 $\frac{1}{2}$ " Ajax iron bed upsetter geared, with side shear.
- 4-slide cotter pin making machines.
- $\frac{3}{8}$ " Waterbury-Farrel D. S. O. D. cold header.
- $\frac{3}{8}$ " Waterbury-Farrel D. S. O. D. cold header.
- $\frac{3}{8}$ " Waterbury-Farrel S. S. O. D. cold header.
- $\frac{3}{8}$ " cold punched nut machine.
- $\frac{3}{8}$ " National automatic bent nut tapper.
- 6-spindle Acme semi-automatic nut tapper $\frac{1}{2}$ " capacity.
- 6-spindle Acme semi-automatic nut tapper 1" cap.
- 1 $\frac{1}{4}$ " Landis triple head bolt cutter.
- Landis double head bolt cutter, 1 $\frac{1}{4}$ " capacity.
- $\frac{1}{4}$ " Schuster wire straightening machine.
- No. 1 Williams & White bulldozer.

Boring Mills—Horizontal

- 2 $\frac{1}{2}$ " bar Cleveland, table type.
- 4" bar Niles-Bement-Pond, table type.
- 3 $\frac{1}{2}$ " bar P. & H. motor drive.
- 5 $\frac{7}{8}$ " bar Detrick & Harvey, floor type.

Boring Mills—Vertical

- 44" Baush, 2 heads, belt drive.
- 48" Colburn, 2 heads, arranged motor drive.
- 51" Niles-Bement-Pond, single pulley drive.
- 72" Sellers, rapid traverse, arranged motor drive.
- 72" Niles, rapid traverse, two heads.
- 16" Niles, two heads.
- 14" Niles, two heads.
- 12" Betts, heavy duty, motor drive.
- 10"-16" Bement-Miles, with extension head.
- 10"-16" Niles, 2 heads, friction feed.
- 16"-24" Niles with central extension head.

Drills

- 22" Barnes, back geared, geared feed.
- 4" Hammond sensitive radials with tapping attachment.
- 5" Bickford radial, gear box.
- 6" Pond radial, belt drive.
- 6" American triple purpose radial.
- 4-spindle Foote-Burt.
- 4-spindle Moline rail drill, 2" capacity.
- 6-spindle Moline cylinder borer.
- No. 25 Foote-Burt heavy duty, 3" capacity.

Hammers

- 100-lb. Bradley, horizontal helve.
- 200 lb. Bradley upright helve hammer.

CYRIL J. BATH & CO., E. 70th & M
Cable Address: **BA**

Cleveland Stock

Lathes

- 16"x6' Pratt & Whitney, tool room—T. A.
- 18"x8' Prentice, geared head.
- 20"x10' Prentice, geared head.
- 36"x14' Schumacher & Boye, triple geared.
- 42"x24' Niles-Bement-Pond, triple geared.

Milling Machines and Keyseaters

- Type B Briggs Lincoln millers, table 54"x11½".
- 20"x7"x18" Oesterlein plain, belt drive.
- No. 0 Rockford, plain, table 30"x7½".
- Type B Becker vertical, S. P. D.
- No. 2-B heavy Brown & Sharpe, S. P. D.
- No. 34 Ohio plain, cone drive.
- No. 2 Baker Bros. keyseater, 2" cap. automatic feed.

Planers and Shapers

- 36"x36"x14' Gray, 2 heads, belt drive.
- 42"x42"x16' Detrick & Harvey openside planer with rev. m. d.
- 48"x48"x16' Cincinnati, 4 heads.
- 96"x96"x16' Pond, 4 heads, belt drive.
- 24" Queen City Shapers.
- 20" Smith & Mills crank shaper.
- 36" Morton draw-cut shaper.
- 48" Morton draw-cut shaper, with 60" stroke.

Punches and Shears

- 48" throat Bement-Miles, arch. jaw, 1¼"x1".
- 2" Garrison steel bed alligator shear.
- ¼" Niagara circle shear.
- No. 4 Quickwork rotary shear, ⅝" cap., with 48" thrt. circle att.
- ½" Lennox rotary shear.
- ¾" Lennox rotary bevel shear.
- 10"x⅝" Hilles & Jones squaring shear.

Slotters

- 20" Bement crank, cone drive.
- 36" Bement crank.
- 48" Niles-Bement-Pond, motor drive.

Turret Lathes and Screw Machines

- No. 1-B Foster, universal, geared head.
- 3"x36" Jones & Lamson, geared head.
- 18" Libby turret lathe, geared head.
- 24" Gisholt, cone drive.

MISCELLANEOUS

- 52" Gardner No. 24 m. d. disc grind.
- 60"x20" S. & S. gear hobber.
- AJAX reclaiming rolls.
- 400-ton Niles wheel press, 96".
- 36"x20" Allen riveter, ¾" cap.
- Nos. 1 & 2 Buffalo Forge blowers.

Machinery Av., N. E., Cleveland, O.
BATHCO—Cleveland

GRINDING and POLISHING



10—HAMMOND Ball Bearing Polishing Lathes

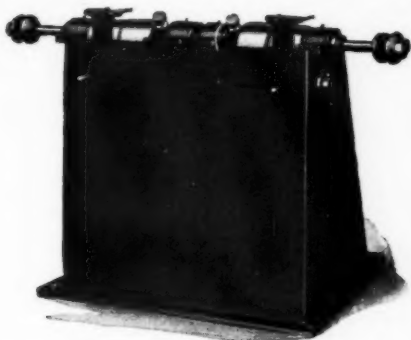
Dimensions:

Diameter of spindles in bearings.....	1¾"
Diameter of spindles between flanges	1¾"
Length of spindles, each.....	30"
Distance between flanges	2¾"
Diameter of flanges.....	5½"
Diameter of tight pulley	6"
Diameter of loose pulley.....	5"
Size of belt	3½"
Length both spindles over all.....	60"
Distance floor to center of spindle.....	37"
Net weight.....	450 lbs.
Floor space.....	60"x26"

Complete list of other machine tools available

The Strong, Carlisle & Hammond Co.

LISHING MACHINES



8—WEBSTER & PERKS Double Spindle Ball Bearing Polishing and Buffing Lathes No. 5

Steel spindle, length of each.....	27 $\frac{3}{4}$ "
Length of both spindles over all.....	57 $\frac{1}{4}$ "
Diameter of spindles in bearings.....	1.7716"
Diameter of spindles between flanges.....	1 $\frac{1}{4}$ "
Bearings.....	2 Double Row Ball 2 Single Row Ball
Distance from tight flange to side of machine.....	8"
Distance between wheels.....	50"
Diameter of flanges.....	4"
Tight Pulleys.....	6" dia. x 4 $\frac{1}{4}$ " face
Loose Pulleys (with Moccasin self-oiling bronze bushings).....	5 $\frac{1}{2}$ " dia. x 4 $\frac{1}{4}$ " face
Will take wheels.....	2 $\frac{1}{2}$ " thick
Height from floor to center of spindle.....	38"
Floor space.....	26"x57 $\frac{1}{4}$ "
Net weight.....	900 lbs.

Available—Send us your inquiries.

Cleveland, Ohio; Detroit, Michigan

Machines of Quality

**MACHINES OF THIS TYPE
ARE HARD TO FIND**

16"x6' American Geared Head Lathe, motor drive, 440 v., 3 ph., 60 cy., a. c.

2A W. & S. Tur. Lathe. arr. for bar & chucking.

3A Warner & Swasey Turret Lathe.

60" Brown & Sharpe Spur Gear Cutter.

22" Pratt & Whitney Vertical Surface Grinder,
72" table, large mag. ch. and 3 new wheels.

10"x36" Norton Plain Grinder.

10"x50" Norton Plain Grinder.

14" Pratt & Whitney Vertical Surface Grinder.

No 4, 16"x72" Cincinnati Universal Grinder.

24" Cincinnati Bickford Upright Drill, friction back geared, sliding head.

4' Cincinnati Plain Radial.

6' Cincinnati Bickford Plain Radial.

6' Cincinnati Bickford Full Universal Radial.

No. 2 Baker Keyseater.

No. 2 Cincinnati High Power Milling Machine,
single pulley drive, rapid power traverse.

No. 3 Cincinnati High Power Miller, s. p. d.

No. 3 Cincinnati Plain High Power Miller.

No. 4 Cincinnati Plain High Power Miller.

No. 3-B B. & S. Heavy Plain Miller, s. p. d.

52" and 60" King Vertical Boring Mills.

THE NOTCH & MERRYWEATHER MACHINERY CO.

CLEVELAND

DETROIT

CINCINNATI

PITTSBURGH

— Mean Satisfactory SERVICE

Mechanics appreciate our
Rebuilt Machines.

Purchasers are protected by
our **guarantee.**

*We Have a Large Selected
Stock and Solicit Your
Inquiry.*

Warehouse and Shop Located at
888 East 70th St., CLEVELAND, OHIO
The Motch & Merryweather Machinery Co.

Good Machines at R

2—(USED) No. 4 Hurlburt-Rogers Cone Type Cutting-Off Machines, capacity $\frac{1}{2}$ " to 4", automatic feed and stop, with pump, pan bed and countershaft, each	\$ 200.
1—(USED) Ingersoll-Rand Pneumatic Drill, serial CC-SB-A971	20.
10—(NEW) 16" Gordon Bench Sensitive Drills, friction drive, No. 2 Morse taper hole in spindle, drilling cap. $\frac{1}{8}$ ", ea.	80.
1—(USED) American Blower Exhaust Fan, type H. 45"; outlet, 16"x16"; inlet 19" round	10.
1—(USED) Wilmarth and Morman (New Yankee) Twist Drill Grinder, motor drive, direct current, 230 volt, speed 1150 and 1200 r.p.m. Largest holder $\frac{1}{2}$ " to $3\frac{1}{2}$ " cap., small holder No. 52 to $\frac{5}{8}$ " drills; with water attach....	175.
1—(USED) No. 26 Bealy Dbl. Disc Grinder with two disc and c. s.	200.
1—(USED) No. 5 Oliver Motor Driven Twist Drill Grinder, capacity $\frac{1}{4}$ " to $2\frac{3}{4}$ ", 1 h. p. motor, 220 volt, 60 cycle, single phase, 1750 r. p. m.	175.
1—(USED) No. 210 Heald Ring Surface Grinder	100.
1—(USED) No. 210 Heald Ring Surface Grinder	50.
1—(NEW) No. 23-B Valley City Double End Disc Grinder with right hand lever feed to table, left hand plain table, two 24" steel discs, hand press and countershaft	375.
1—(USED) No. 5 Williams-White Drop Hammer; weight of ram 600 lb.; distance between guides $16\frac{1}{4}$ "; length of guides 4' 2". With sandage lifter, single pulley dr. $24"x6\frac{1}{2}"$	200.
1—(NEW) No. 1 Davis Keyseater arranged for motor drive	455.
1—(USED) $21"x12'$ LeBlond Heavy Duty Automobile Lathe with 3-step cone double friction back gear, plain rest, pan bed and pump, dble. friction countershaft. Machine will swing over shears $22\frac{1}{2}"$ and takes between centers 7'. Serial NF-3498	1200.
1—(USED) $19"x8'$ LeBlond Heavy Duty Automobile Lathe with 3-step cone double friction back gear, double friction countershaft. Serial NE-1922	800.
3—(USED) $13"x6'$ Sebastian Standard Loose Change Gear Engine Lathes, 4-step cone, single back gear compound rest and countershaft, each	150.
1—(USED) $13"x6'$ Willard Standard Loose Change Gear Engine Lathe, 3-step cone double friction back gear, compound rest, single friction countershaft	150.
1—(USED) $14"x6'$ Flather Standard Loose Change Gear Engine Lathe, 4-step cone single back gear, dbl. friction c. s.	150.
1—(USED) $14"x6'$ Carroll-Jamieson Engine Lathe, 4-step cone single back gear, has four change box for geared feed, compound rest, double friction countershaft	150.
1—(NEW) No. $1\frac{1}{2}$ Knight Vertical Milling Machine with power feed to table, vise and countershaft	900.

PENINSULAR MACH

2921-2925 East Grand Blvd

at Reasonable Prices

1—(USED)	Bethel-Player (Fraser) Lapping Machine with 26" lapping plates for lapping piston rings, tight and loose pulley on machine for belt drive 12"x2½"	700.
1—(USED)	No. 10 Pratt & Whitney Hand Milling Mche. with c. s.	150.
1—(USED)	No. 0 Brown and Sharpe Plain Miller, belt feed, oil pot and double friction c. s., without back gears.....	275.
1—(USED)	No. 32 Kempamith (Lincoln Type) Milling Machine. Table range 36"x5½"x8½", No. 10 Brown and Sharpe taper hole in spindle; center of spindle to under side of overarm 4½", with arbor and countershaft.....	300.
1—(NEW)	No. 9 Blackmer Hand Rotary Pump, capacity 12 gallons per minute	15.
2—(NEW)	No. 30 Long and Allstatter Open Back Inclinable Power Presses, belt drive, weight of flywheel 350 lbs.; total weight of machine 2200 lbs.; stroke 2½", each...	400.
1—(NEW)	No. 22 Rockford Flywheel Horning Press with adjustable table, stroke 1½"; weight of machine 2670 lbs....	423.
1—(NEW)	No. 2 Rockford Open Back Inclinable Flywheel Press, stroke 2"	325.
1—(NEW)	No. 4 Rockford Open Back Inclinable Flywheel Press, stroke 2½"; weight 4000 lbs.	750.
2—(USED)	12" Rochester Gear Tooth Rounding Machines, capacity largest gear 12", smallest gear 1½"; complete with oil pump, arbor and countershaft, each.....	250.
1—(USED)	32" Band Saw (Wood).....	100.
1—(USED)	Napier Metal Band Saw, vise opens 6"; complete with tight and loose pulleys for belt drive	100.
1—(USED)	No. 15 Lea-Simplex Type BD, Cold Metal Saw for belt dr., capacity round stock 5"; square stock 4½"; l-beams 9"; tight and loose pulley. Mche. like new..	500.
1—(USED)	No. 1 National Acme Screw Slotter.....	125.
1—(NEW)	No. 1 Frew Automatic Tapping Machine, belt drive with countershaft; takes ½" U. S. tap,	345.
1—(USED)	1"x15" Pratt and Whitney Turret Lathe with power feed to turret slide, 3-step cone, without back gears, independent stop to each face of turret, chuck capacity 1", has wire feed att., pan bed, triple countershaft....	500.
1—(USED)	2½"x26" Pratt and Whitney All Geared Turret Lathe with cross feeding turn table. Machine will swing 20", takes 2½" in spindle.....	300.
1—(USED)	No. 2 Warner and Swasey Hollow Hex. Turret Lathe with automatic chuck, roller wire feed, power feed to turret slide, friction head, 3-step cone, pan bed, and pump, triple friction countershaft. Spindle cap. 2" ...	400.
1—(USED)	No. 100 Agnew Electric Butt Welder, capacity ½" round, transformer wound for 220 v., 60 cy. current..	100.

ACHINERY COMPANY

ivd Detroit, Michigan

We Have Just Purchased The Following Equipment Which Must Be Moved Immediately At Low Prices—

LATHES

32"x10' Boye & Emmes 4-step cone, d. b. g., q. c. cabinet legs, late type, extra heavy duty	\$1200.
22"x8' LeBlond q. c. Lathe, pattern, heavy production tool, 4 jaw chk.	500.
22"x8' American q. c., d. b. g., cabinet legs, heavy pattern, 4 jaw ind chuck (2). Each	650.
18"x8' Giddings & Lewis q. c., oil pan, complete with standard equipment, (2). Each	350.
18"x8' Champion q. c., oil pan, complete with standard equipment, (2)	325.
16"x6' South Bend change gear, compl. with standard equip., (2) Ea.	175.
14"x5' Willard q. c., with t. a., and standard equipment, (2). Each	260.
18"x8' Hendey q. c., yoke hd., pan bed, complete with standard equip.	850.
16"x6' Bradford q. c., with t. a., complete with standard equip., chuck.	550.
18"x8' Sidney quick change, heavy pattern, 95% new.	850.

DRILL PRESSES

20" Rockford b. g., p. f., motor driven, with 110 v. 1 h. p. motor	\$ 85.
4-spindle Kern Ball Bearing Drill, No. 2 Taper tapping attach., 1" cap.	550.
4-spindle Kokomo hi-speed roller bearing Drill Press, No. 3 taper, 1" capacity 12" overhang, large table	600.
21" Cincinnati back geared, tapping attachment	125.
25" Barnes sliding hd. Drill Press, grd. fds., with tapping att. (2). Ea.	250.

MILLING MACHINES

No. 3 Kempamith Pl. Miller, with 10" univ. div. hd., ck. 8", center rest.	650.
No. 2 Knight Vert. Drill. & Mill. Mch., grd. fds., mtr. driven, 90% new	550.
No. 12 Brown & Sharpe Production Milling Machines, (2). Each	325.
No. 1 B. & S. univ. Milling Mch., rebuilt, compl. with stand. equip.	675.
No. 2 LeBlond univ. Milling Machine, complete with standard equip.	650.

GRINDERS

No. 2 Oakley Tool & Cutter Grinder with attachments	\$ 425.
No. 1 Bath universal Grinder, 8"x18" head and tail stock	175.
No. 2 Brown & Sharpe Surface Grinder, rebuilt	425.
No. 1 Greenfield plain Grinder, 5"x14", hydraulic feed	275.

PLANER

24"x24"x6' Whitcomb Planer, in very good condition	\$ 250.
800 lb. Double Belt—25 h. p. Motor—Roller Bearing Hangers.	

A Few Items Of Our Regular Stock

LATHES

42"x40' Pond Face plate drive, heavy duty, with 40' ext.	\$2000.
42"x24' Pond face plate drive, heavy duty	1600.
18"x8' Lodge & Shipley q. c., with extra p. f. turret	450.
16"x10' LeBlond q. c.	550.
16"x7' LeBlond production lathe, q. c.	375.
16"x6' LeBlond production lathe, q. c.	325.
114"x6' Sidney qk. chge. (never under belt)	350.

SHAPERS

16" G. & E. crank, hi duty	\$ 675.
16" G. & E. crank, hi duty	650.
16" Cincinnati crank, s. p. d.	550.
16" Hamilton crank, hvy. pat.	475.
17" Smith & Mills crk. shaper	350.
7" Rhodes shaper slotting hd.	300.
4' Carlton heavy duty radial, motor driven, box table	\$ 875.
7' Pond heavy pattern	1200.
26" Superior h. d., sliding head	250.
25" Barnes sliding head, t. a.	250.
26" Prentice sliding head, t. a.	275.

DRILL PRESSES

The Toledo Mchy. Exch. Co.
18 North St. Clair St., Toledo, Ohio

High Grade Machine Tools

Lathes

- 36"x18" Fifeild Engine Lathe.
- 30"x18" LeBlond, 5 S. C. Q. C.
- 36"x60"x12" Harrington Lathe.
- 24"x12" Draper Engine Lathe.
- 26"x12" Putnam Q. C.
- 21"x10" LeBlond h. d., late type.
- 25"x10" LeBlond. Q. C. late type.
- 20"x8" Hendey, yoke head, t. a.
- 18"x8" American, Q. C. Cone drive.
- 18"x 8" Rahn-Larmon Q.C. late type.
- 16"x8" Cincinnati late type, Q. C.

Grinders

- No. 70 Heald Grinder.
- No. 60 Heald, \$275.00 each.
- 10"x20" Landis.
- 10"x52" Landis, self contained, 95% new.
- 16"x72" Landis crankshaft.
- No. 2 Oakley univ. tool grinder.
- No. 1 LeBlond Tool Grinder.
- Modern Chaser Grinder.
- Yankee Drill and Tool Grinder.

Milling Machines

- No. 4 LeBlond Plain Miller.
- No. 3 Cincinnati univ., cone drive.
- No. 3-H LeBlond Pl. Miller, latest type
- No. 2 Kempsmith, Universal.
- No. 1 1/2 Valley City.
- No. 3 Brown & Sharpe.

Radial and Upright Drills

- 4" Bickford, Gear Box, S. P. D.
- 26" Barnes, latest, tap. att.
- 26" Cincinnati Upright, C. D.
- 26" Rockford Upright, C. D.
- 25" Superior Upright, C. D.
- 6-spindle Rockford 20" B. G. P. F.
- 20" Barnes camel back.

Shapers

- 15" Springfield, cone drive.
- 20" Hendey.
- 20" Ohio Crank Shaper.
- 20" Steptoe B. G. Crank Shaper.
- 24" Steptoe B. G. Crank Shaper.
- 24" Smith & Mills B. G. Crk. Shaper.
- 28" Queen City, S. P. D.

48x48x16' Detrick & Harvey Openside Planer, excellent condition....\$2,750.00

Gear Cutters

- 60" Brown & Sharpe Gear Cutter.
- 36" Brown & Sharpe Gear Cutter.
- 36" Whiton Bevel & Spur Gr. Cutter.
- 18" Schuchardt & Schutte Hobbers.

Boring Mills

- No. 1 Rockford, 2" bar.
- 30" Colburn, Vertical.
- 24" Bullard Rapid Prod., latest type.
- 36" Bullard vert., 2 heads.
- 42" Gisholt, two heads, late type.

Planers

- 16x16x36" Pratt & Whitney Planer.
- 42"x36"x12" Cincinnati, 2 heads.
- 32"x32"x12" Ohio, 2 heads.
- 24"x24"x12" Chandler, 2 heads.
- 48"x48"x16" D. & H. Opens. 2 hds.

Miscellaneous

- 1" National Bolt Cutter, complete.
- 1 1/2" Acme double spindle Stay Bolt Cutter, with Landis Heads.
- No. 2 Kane & Roach Multiple P. & S.
- 100 lb. Little Giant Hammer.
- 50 lb. Little Giant Hammer.
- No. 2 Mitts & Merrill Keyseater.
- No. 0 Baker Keyseater.
- No. 2 Baker Keyseater.
- Whiting Punch & Shear, No. 8, 36" throat, 1 1/4"x1 1/4".
- Wickes Punch & Shear, 48" throat, 1 1/2"x1 1/2".
- No. 8 Long & A. Punch & Shear.
- No. 1 Badger State Alligator Shear.
- 10" Bertsch Power Squaring Shear, 14 gauge.

Write for Complete Catalogue—We Buy, Sell and Exchange

Cincinnati Machinery & Supply Co.
28 West Second St., CINCINNATI, OHIO

- B-2687—Niles-Bement-Pond- 51" Vertical Boring Mill, Serial No. 12977, with plain table 51" dia., having a maximum swing of 52½", set of four face plate jaws fitted, with countershaft, single pulley drive, with gear box, 16 geared table speeds, 8 geared table feeds in all directions, left hand swivel head, with octagon ram, right hand turret, power elevator..... **\$1250.**
- B-2528—Ajax 2½" Forging Machine, with countershaft for belt drive, with cast iron bed, with stop motion mechanism, with side shear, with cast iron gears, steel pinion both cut from solid; Serial No. 689..... **\$700.**
- B-2934—2½" Merriman Bolt Cutter, with self-opening adjustable Die Head, pan and pump, full set of chasers, right hand, for bolts from ½" to 2½", countershaft for belt drive including T. & L. pulleys providing reverse..... **\$900.**
- B-2540—No. 502 Greenlee Gainer, Serial No. 18036, for car sills, with self-contained 15 HP G. E. Motor, 1720 RPM, with compensator on wall, has two rollers on main bed and six roller stands **\$600.**
- B-1558—42"x22" William Gleason Engine Lathe, belt drive, with 5-step cone and double back gear and internal face plate drive; lathe takes 14'-6" between centers; swings over bridge of carriage 32"; compound rest with power feed, also power cross and longitudinal feed, screw cutting and loose change gears; solid spindle; one large steady rest taking 27", and one small steady rest taking about 16", with countershaft..... **\$950.**
- B-2093—No. 26 Brown & Sharpe Self-Contained Plain Cylindrical Grinding Machine 12"x72" (maximum swing 13"), takes grinding wheel up to 18" diameter up to 4" face, no countershaft, tight pulley 10" dia., 5¼" wide on drum shaft in base, thirty-two speeds provided..... **\$750.**
- B-2801—5' Fordick Plain Radial Drilling Machine, with flat face column, speed box drive, tapping attachment..... **\$950.**

We have all sizes of Engine Lathes, Milling Machines, Grinding Machines, Punches, Shears, Drilling Machines, and other Miscellaneous Tools. Write for list and prices.

331-335 West Fourth St.,

Cincinnati, Ohio

BRANCHES: INDIANAPOLIS, IND., HAMILTON, OHIO, DAYTON, OHIO,
LOUISVILLE, KY., COLUMBUS, OHIO

Screw Machines

And Other Tools

- 1/2" Cleveland model A, very fine.
- 1/2" Cleveland model B, very fine.
- 7/8" Cleveland model A, serial 31000.
- 7/8" Cleveland model B, serial 27000.
- 1 1/4" Cleveland model A, serial 26000.
- 1 1/2" Cleveland model A, serial 31000.
- 2" Cleveland model A, serial 23000.
- 4 1/4" Cleveland model A, serial 17000
- 1 1/4" Gridley multiple, serial 8167
- 6"x32" Norton Grinders, serial 9200.
- No. 51 Toledo Arch Press, wiring slide.
- No. 119 Bliss Screw Cap Thread Roller.
- No. 2X Garvin automatic Tapper.
- No. 1 Norton Universal Cutter Grinder.
- No. 2 Walker Univ. Cutter and Tool Grinder.
- LeBlond Universal Cutter and Tool Grinder.
- 4" Saunder Pipe Machine.
- 4" Acme Bolt Cutter.
- 16"x6" Prentice geared quick change Lathe.
- No. 3 Cincinnati Vertical Miller.

Special Bargain

No. 7 Zeh & Hahneman percussion Screw Press, 50 ton size. Used very little.

What Else Do You Need ???

A. D. White Machinery Co.

108 N. Jefferson St.,

Chicago, Ill.

Attractive Prices To Move Stock

- BORING MILLS:**----- D. & H. Horizontal Floor Borer 5" bar.
Gisholt 42", Colburn 72", Betts 7 1/10" Vertical.
- DRILLS:**----- 20" Snyder, 24" Weigel, 14" Rockford.
5" Prentice: 10" Bausch Radials.
2" Fosdick, 3" Bickford, t. a.
Moline 10-spindle, No. 5 Morse taper.
Baush Multiple Drill, 12-spindle.
- LATHES:**----- 14"x6' Hendey, t. a.
18"x8' Lodge & Shipley, q. c. g.
24"x12' Rockford, taper att.
24"x12' 10" American q. c. g.
26"x16' Prentice, taper attachment.
36"x18' Porter.
54"x27' Pond: 63 1/2"x36' 6" Centers Niles H. D.
18"x12' Roll Turning.
- MILLING MCHES.:**----- Ingersoll Fixed Rail, 24"x21"x20' table.
Ingersoll Slab 30"x30"x12', m. d.
- PUNCH & SHEAR:**----- Canedy-Otto, hand power, 1/2"x1/2".
No. 6 Long & Allstatter S. E.
Royersford No. 3, 16" throat 1"x1".
Cleveland "EF", 36" throat 1 1/4"x1".
Industrial Double End, 7/8"x7/8".
No. 2 Hilles & Jones hor. punch, 8" throat.
Doelger-Kirsten No. 2 Alligator, high knife.
Marshalltown No. 10-P Throatless.
- GRINDERS:**----- Landis No. 5 Cylinder.
Besly No. 3 Disc.
Cincinnati 10"x48" Grinder.
Cincinnati 12"x72" Plain Cylindrical Grinder.
- SHAPERS:**----- 14", 24" Gould & Eberhardt, b. g.
- MISCELLANEOUS:**----- Bailing Machine with 40 h. p. motor.
Band Saw Metal, Wheels 18", cap. 6".
Brake, Chicago Hand, 72"x1/16".
Hammer, 250 lb. Little Giant m. d.
Planers, Cincinnati 48"x44"x12".
Planer, Flather 48"x48"x16' heavy duty.
Planer, 48"x48"x21' Gray, 3 heads.
Planer, 48"x48"x16' D. & H. Openside.
Planer, 72"x54"x12' Niles-Bement-Pond.
Planer, Detrick & H. Openside, 96"x72"x26".
Presses, No. 0 Consolidated, O. B. I.
Presses, No. 1—No. 3 V. & O.—O. B. I.
Presses, Nos. 18 and 19 Bliss, Perkins.
Press, 50 ton Lourie Hydraulic.
Presses, Arbor, No. 3 1/2 Greenerd; No. 1 Atlas.
Profiler, P. & W. table 12"x15", double spindle.
Saw, Hunter 24" hi-speed, m. d.
Saw, 18" Higley Cold.
Saw, No. 3 Sterling Hack 9"x9".
Screw Machines, Cone Automatic 7/8", M. D.
Screw Machine, 2 1/4"x11" Acme.
Screw Machine, Meriden, 6 hole turret.
Surface Plate 44 1/2"x6' 8", 6 1/2" thick.
Welder, Westinghouse Arc, with 10 h. p. mtr. compl.
Wire Straightener, Schuster 1/8".

RUSSELL MACHINE COMPANY
1447 Oliver Building, PITTSBURGH, PA.

NEW 3 PHASE MOTORS CHEAP—FROM ½ H. P. UP

LATHES

12"x 5' Cleveland, geared head.
 14"x 6' Carroll-Jamieson, new, q. c.
 14"x 6' Hamilton, grd. hd., motor dr.
 14"x 6' Monarch, quick change.
 14"x 6' Sebastian, grd. hd., m. d.
 14"x6' Worcester.
 14"x 8' Sidney, double back geared.
 16"x 8' Hamilton, quick change.
 18"x10' American, quick change.
 20"x10' Hamilton, rapid production.
 20"x10' Prentice, taper attachment.
 24"x24' Prentice, with raising block.
 8x60" & 3½x60" Fitchburg, Lo-Swing
 South Bend, new, all sizes.

TURRET LATHES and SCREW MACHINES

No. 52 National Acme automatic.
 No. 53 National Acme automatic.
 No. 54 National Acme automatic.
 5" capacity Acme.
 No. 4 Defiance, 1½" capacity.
 1½" capacity Smurr & Kamen.
 1½" Millholland.
 2x24 and 3x36 J. & L.
 No. 1 Foster, 13/16" capacity, (2).

SHAPERS

14" Niles, traveling head.
 14" Steptoe, crank.
 16" Barker.
 16" O. & S., b. grd., new, low price.
 24" O. & S. back geared crank.

PRESSES

No. 10 and No. 15 Excelsior, foot.
 Nos. 3-A & 5-A Willard inclinable.
 Nos. 1, 1½, 2, 3½ Robinson, new.
 No. 4 Federal o. b. i.
 No. 5 Federal o. b. i.
 Emco bench.

DRILLS and RADIALS

No. 1 Baush multiple.
 Baush 5' radial.
 Hilbert 3' radial.
 22", 24", 26", 28" and 32", sliding hd.
 32" Hoefer, sliding head.
 6" Ceiling drill.
 25" Kokomo high speed.
 44" Stover.
 Sipp high speed, single-spindle.
 Hole Hog, No. 66-D, 7-spindle.

MILLING MACHINES

No. 1½ American plain.
 No. 2 Kempsmith plain.
 No. 3 Kempsmith plain, new.
 No. 4 LeBlond plain.
 No. 25 Bilton.
 No. 25 Becker plain, power feed.
 No. 2 H Brown & Sharpe plain.
 Oesterlein 24x7½x18 plain.
 Ingersoll 24" x 20" x 6' horizontal
 motor drive.

GRINDERS

Nos. 1 & 78 W. & M. surface.
 6"x15" Fitchburg plain.
 12"x36" Cincinnati universal.
 16"x42" Landis universal.
 36" and 66" Yates plate.
 No. 60 Heald cylinder.
 Schmitt cylinder grinder.
 J B X, W. & M. tool and cutter.
 No. 10 Besly 18" double disc.
 No. 20 Bryant, chucking.

MISCELLANEOUS

Band saw, Clark, compound.
 Band saw, Napier 10"x10".
 Blower, No. 6 Piqua, pressure.
 Blower, positive pressure, Leiman
 Boring mill, Colburn No. 3, tur. hd.
 Brake 10'. Keene, 18 ga.
 Brake, 12' Chicago Steel 18 gauge.
 Broaching mchs., 1 and 3 LaPointe.
 Compressors, 6x8, 8x8 and 9x8.
 Gear cutter, No. 3—26 B. & S.
 Gear cutter, No. 13 Brown & Sharpe.
 Gear miller, Bilton No. 1.
 Hammer, 150 lb. Standard drop.
 Pipe machines, 2", 4" & 6".
 Planer, 36"x36" Gray, heavy duty.
 Planer, 24"x24"x6'.
 Planer, 36"x36"x14' Gray, 2 heads.
 Planer, 42"x42"x12' Gray, 2 heads.
 Planer, 48"x48"x16' Cincinnati, 4 hd.
 Punch & shear, 3x½x10" throat.
 Riveting hammers, Nos. 1, 2, 3, 4-A
 High Speed.
 Sand blast, Boland.
 Scale, 1500 lb. Toledo, dial type.
 Shear, 60" Peck, Stow & W., 18 ga.
 Shear, No. 362 Robinson.
 Shear, No. 562 Niagara.
 Shear, circular, Pettingell, 60" thrt.
 Threading mche., W. & P. 2-spindle.
 Washing machine, Blakeslee.

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COLUMBUS **OHIO**

Extraordinary Machine Tools—

Boring Mills

- 1—42" Bullard Vertical.

Broaches

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- 3—LaPointe Nos. 1-2 and 3.

Drills

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- 2—Acme 6D Semi-Auto. Drilling.
- 1—American 26" S. S.
- 7—Aurora 21-24" S. S.
- 3—Barnes 15" & 25" S. S.
- 4—Barnes Camel back 24".
- 6—Cincinnati 21-26" S. S.
- 1—Edlund No. 2 Sensitive S. S.
- 5—Kern 20" S. S.
- 1—Rockford 12" S. S.
- 3—Superior 20"-26" S. S.

Drills—Multiple

- 1—Avey No. 2 High Speed 3-sp.
- 1—Barr Sensitive 3-spindle
- 1—Kingsbury 4-sp. Horiz. D.M.D.
- 1—Mason 3-spindle high speed.
- 1—Rockford, 4-spindles.
- 1—Gardam 34-spindles.

Drills—Radial

- 3—American 36" Sensitive.
- 2—Carlton 36" Sens. Motorized.

Gear Shapers

- 8—Fellows No. 6 and 36".

Grinders

- 19—Norton Pl. Ext. 6x32, 10x24, 10x36, 10x50, 10x72, 14x72.
- 13—Heald Int. Nos. 60-65-70-75.
- 1—Besly No. 14 Disc.
- 1—Besly No. 6 Dbl. End. Auto.
- 1—Gardner Disc.
- 1—Norton No. 1 Univ. Tool & Cut.
- 1—Ohio No. 3 Univ. Tool & Cut.
- 2—Rivett No. 205 Radial.
- 2—Rivett Universal No. 6 Inter.
- 2—Landis No. 3 Universal.
- 1—B. & S. No. 11 Plain Ext.
- 3—Bryant Chuck. Nos. 6 & 15A.
- 1—Cincinnati 12x36" Pl. External.
- 1—Brown & Sharpe No. 22 Int.
- 1—Capitol No. 1 Internal.

Hammers and Riveters

- 1—Standard No. 5 Drop.
- 1—Little Giant 100 lb. Trip.
- 1—Beaudry No. 40.

- 2—Nos. 1½ B. & 2A H. S. Rive.

Lathes—Engine—Miscellaneous

- 2—L. & S. 18x8 B. G., Q. C. t. a.
- 1—Hamilton, 16x6, B. G., Q. C.
- 4—Lodge & Shipley 18x8, 16x6, 20x10, 22x10, B. G., Q. C.
- 1—Sidney 20x10, B. G., Q. C.
- 2—LeBlond 17x12, 21x12, B. G., Q. C.
- 5—Greaves & Klusman 18x6, 18x8, 30x8, B. G., Q. C.
- 3—Chard 16x6 & 24x11 B. G., Q. C.
- 2—Amer. 14x6, 16x6 B. G., Q. C.
- 2—Carroll & J. 14x6, B. G., Q. C.
- 5—Fitchburg Lo-Swing 3½x60", 8x60".
- 1—L. & S. Duplex 24x12 Cr. Pin.

Lathes—Turret and Screw Mchs.

- 4—Foster No. 1-B—20" swing.
- 2—Potter & Johnson No. 6A.
- 2—Gisholt No. 2, D. M. D.
- 2—Gisholt No. H21.
- 3—W & S. 18", No. 6.
- 1—Millholland 1" D. M. D.
- 2—Pratt & Whitney 20".
- 2—Acme 2¼x11—26".

Milling Machines—Vertical

- 2—Becker No. 5 and No. 6.

Milling Machines—Horizontal

- 2—Milwaukee No. 2B Double overarm, Vertical Head.
- 1—Milwaukee No. 2B Dbl. overarm, Vert. Hd., Rotary table.
- 2—Milwaukee No. 2BS Dbl. over.
- 1—B. & S. No. 1½ B. S. P. D.
- 2—Brown & S. No. 2B and 12.
- 7—G & E. (Briggs) A38" & B102.
- 1—Stephoe Hand with Vert. Att.
- 2—Standard No. 0 & Whitney No. 6

Milling Machines—Slab

- 1—Ingersoll 20x20x12'

Planer

- 1—American 30x30x10', 3 heads.

Presses

- 1—Toledo No. 54 B. G. Arch.
- 5—Toledo Incl. Nos. 4, 3½, 2½, 1
- 1—Toledo No. 141 Pwr. Sprue Cut.
- 1—Metalwood 36A Hyd. Arbor and Forcing.
- 1—Max Arms No. 124.
- 2—Hyman Straight Column.

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12" Smith & Mills Shaper.
16" Smith & Mills Shaper.
24" Cincinnati B. G. Shaper.
26"x26"x6' Planer.
5' Arm Radial Drill.
Carlton Speedy Sensitive Drills.
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No. 3 Plain Milling Machine.
No. 4 Vertical Milling Machine.
42" Bullard Boring Mill.
4½" Horizontal Boring Mill.
14" to 60" Swing Cone Drive Lathes.
24" to 50" Geared Hd. M. D. Lathes.

Among the Big Used Tools—

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48"x48"x14' Planer.
72"x72"x24' Planer.
84"x60"x30' Planer.
36, 48 and 60" Punch and Shears.
10' Set Bending Rolls.
50"x24' Bement-Miles Lathe.
26"/48"x14' McCabe "2-in-1" Lathe.
26"/48"x16' McCabe "2-in-1" Lathe.

J. J. McCabe Lathe & Machinery Corp.
149 Broadway, NEW YORK CITY

All In Chicago Stock

MILLING MACHINES

No. 4 Cincinnati vertical miller,
rapid traverse.
No. 1 Kempsmith plain, cone head.
No. 1 B. & S. plain cone head.
No. 2 B. & S. plain cone head.
No. 3 B. & S. grd. hd., a. c., m. d.
No. 28 Ohio plain, cone head.

No. 33 Kempsmith Prod. miller.
No. 3 Cincinnati plain Hi Power
Gooley & Edlund Lincoln type.
No. 1 Kempsmith univ. cone head.
No. 3 Kempsmith univ. cone head.
No. 3S Cincinnati univ. geared hd.
18" Cincinnati automatic.

LATHES

11"x4' Star Lathe (new).
12"x5' Hendey, q. c., taper att.
14"x6' Hendey, cone.
14"x6' American, q. c. taper att.
14"x8' Rockford, q. c., (new).
14"x6' Flather, q. c.

16"x8' South Bend, plain chuck.
16"x8' Monarch, quick change.
16"x8' Rockford, q. c., (new).
16"x8' Cincinnati, q. c.
18"x8' Boye & Emmes, q. c.
20"x10' American quick change.

SENSITIVE DRILLING MACHINES

New and Used 1, 2, 3 & 4 spindles
Allen b. b. drills.

3-spindle Avey ball bearing.
1 & 2 spds. Leland-G. Light Duty.

UPRIGHT RADIALS AND MULTIPLE DRILLS

20" Barnes all geared.
24" Barnes all geared No. 246 drill
and taper.
20" Excelsior, b. g.
24" Superior stationary head.
25" Barnes, stationary head.

36" Hamilton, sliding head.
No. 13 Pratt & Whitney, 16-sp.
3-sp. Hoefler stationary head.
No. 2 Colburn, Heavy Duty.
2-sp. Colburn No. 2, Hy. Dy.

SHAPERS

14" and 16" Smith & Mills.
16" Columbia, single pulley (new).
16" Barker cone.
16" Rockford, cone.

16" Gould & Eberhardt cone.
20" Columbia, single pulley, (new).
20" Gould & Eberhardt, cone.
24" Columbia, single pulley (new).

GRINDERS

Bridgeport 110" Knife grinder.
Gisholt tool grinder.
Diamond Tool & Surface Grinder.

10"x36" Thompson Univ. T. & C.
Large assortment plain wet and dry
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TURRET LATHES

Cleveland automatics, 1", 1", 1",
14"x9' Acme, P. F.

No. 4 Bardons & Oliver, P. F. with
and without pan.
No. 4 Warner & Swasey.

MISCELLANEOUS

14" Acme Single and Double Head
Bolt Cutters.
8" Landis pipe machine.
4" Oster, (new).
Napier 10" Band Saws
6x6 Hack Saws.
No. 3 Reynolds Screw Driver.

No. 12 Barber-Colman Gear Hob.
No. 6-36" Fellows Gear Generator.
New Federal Presses, all sizes.
68N Bliss Double Action.
161 Toledo Toggle Press.
Buffer and Filing Machines.

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- 1-Bullard 24" New Era.
- 1-Bullard 36" r. p., side head.
- 1-Baush 42" vertical, 2-heads.
- 1-Niles 42" vertical, 2-heads.
- 1-Putnam 44" vertical, 2 heads.
- 1-Sellers 72" vertical, 2 heads.
- 1-Betts 12" vertical, 2 heads.
- 1-N-B-P 10-16" vertical, 2 heads.
- 1-Pond 10-24" vertical.
- 1-Betts 16-24" extension vertical.
- 1-Cleveland 24" bar, horizontal.
- 1-Pawling & Harnischfeger 34" bar
- 1-Detrick & Harvey 4" bar, hor.
- 1-N-B-P 44" bar, duplex cont. hor.
- 1-Rockford No. 2 horizontal.

DRILLS—Multiple Spindle

- 16-Baush Nos. 1, 2, 3 and 4.
- 8-Detroit 5-spindle.

DRILLS—Upright

- 1-Allen 4-spindle.
- 2-Barnes 20" and 24" camel back.
- 1-Leland-Gifford 2-spindle, b. b.
- 1-Foote-Burte 4-spindle.
- 6-Henry & Wright 2, 3, 4, 6-spdl.
- 1-Pratt & Whitney No. 2 gun brl.
- 1-New Turner No. 3 vertical.

DRILLS—Radial

- 1-Cincinnati 3'.
- 3-Western 3' plain.
- 1-American 4' plain, trip. purpose.
- 1-Amer. 6' plain, tripl pur.
- 1-Baush 6'.
- 2-Dresses 5', 6' plain.
- 1-Cincinnati Bickford 6' plain.
- 1-N-B-P. 96" plain.
- 1-Cincinnati Bickford 6' universal.
- 1-American 7' triple purpose.

GEAR CUTTERS

- 7-B. & S. 3x26, 3x36, 4x36.
- 1-Gould & Eberhardt 36".
- 3-B. & S. No. 6, 60" cap.
- 1-G. & E. No. 18-H.
- 1-Cincinnati 16" Gear Hobber.
- 3-Fellows Gear Grinders.
- 3-Gleason 15" spiral bev. roughers.
- 4-Gleason 6", 11", 18".
- 1-Gleason 24" bevel gear planer.
- 5-Fellows Nos. 6, 61, 65, 615.

GRINDERS

- 3-B. & S. Nos. 1, 2, 3.
- 4-Cincinnati No. 2. 12x36, plain.
- 9-Landis 6x18, 10x24, 10x36, 12x36, 12x96 plain.
- 7-Norton 3x18, 6x32, 10x24, 10x36, 10x50, 16x36, 10x72 plain.
- 2-Landis 10x52 cam.
- 1-Springfield Brandes vert. grind-ing planer.

- 1-Persons-Arter 8" surfacer.
- 12-Heald Nos. 65, 60, 70.
- 1-Bath Spline.

HAMMERS

- 1-New Bradley 30 lb. helve.
- 1-Chambersburg 400 lb. bd. drop.
- 1-B. & S. 800 lb. drop.
- 1-Toledo 1500 lb. bd. drop.

MILLING MACHINES

- 6-B. & S. Nos. 2, 2B, 3, 4, plain.
- 8-Cincinnati Nos. 2, 3, 3-S, 4 plain.
- 2-Garvin No. 134 plain.
- 1-B. & S. No. 2 univ., cone pulley.
- 3-Garvin Nos. 14, 2A universal.
- 13-Becker Nos. 3H, 4B, AB, 5C, 6, C1, vertical.
- 7-P. & W. 49x12, 6x14, 6x48, 6x80 th.
- 11-P. & W. 5", 8", 10", 12" auto.

LATHES

- 1-Hendey 16"x8', geared head.
- 6-Lodge & Shipley 18"x8' selec-tive gear head, with taper att.
- 3-LeBlond 26"x10' duplex crank.
- 1-Johnson 30"x12', m. d.
- 1-Hendey 24"x12'.
- 1-Bridgford 42"x38'; grd. hd.
- 1-American 36"x24'.

Lathes of all sizes and types.

SCREW MACHINES—Automatic

- 14-Cleveland 8", 10", 12", 14", 16", 18", 20", 22", 24", 26", 28", 30", 32", 34", 36", 38", 40", 42", 44", 46", 48", 50", 52", 54", 56", 58", 60", 62", 64", 66", 68", 70", 72", 74", 76", 78", 80", 82", 84", 86", 88", 90", 92", 94", 96", 98", 100".
- 4-Cleveland 8", 10", 12", 14", 16", 18", 20", 22", 24", 26", 28", 30", 32", 34", 36", 38", 40", 42", 44", 46", 48", 50", 52", 54", 56", 58", 60", 62", 64", 66", 68", 70", 72", 74", 76", 78", 80", 82", 84", 86", 88", 90", 92", 94", 96", 98", 100".
- 17-Gridley 8", 10", 12", 14", 16", 18", 20", 22", 24", 26", 28", 30", 32", 34", 36", 38", 40", 42", 44", 46", 48", 50", 52", 54", 56", 58", 60", 62", 64", 66", 68", 70", 72", 74", 76", 78", 80", 82", 84", 86", 88", 90", 92", 94", 96", 98", 100".
- 9-Gridley 34" single.
- 6-New Britain Nos. 23, 24, 53.
- 4-Nat'l Acme Nos. 52, 54, 56, 515.
- 11-P. & J. No. 5-A, No. 6-A.

TURRET AND SCREW MCHS.

- 1-Acme Fox Monitor.
- 6-Foster Nos. 2, 4, 6.
- 4-Greenlee 24x26.
- 16-J. & L. 24x24, 3x36.
- 1-W. & S. No. 6.
- 1-B. & S. No. 6.
- 1-Steinlee 24" Turret.

PLANERS

- 2-Putnam 26x26x8', 2 heads.
- 1-Gray 38x38x20', 3 heads.
- 1-Woodward & P. 36x36x16', 4 hds.
- 1-Detrick & Harvey 30"x10', single head, openside.

SHAPERS AND SLOTS

- 2-Gould & Eberhardt 20", 24".
- 2-Cincinnati 16", 20".
- 1-Dill 15-18" Slotter.
- 1-Niles 30" Slotter.

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- 1-No. 2-B Kearney & Trecker Plain Milling Machine with dividing heads.
- 1-No. 2 Cincinnati High Power Plain Milling Machine.
- 1-No. 3 Brown & Sharpe Vertical Milling Machine.
- 1-No. 13-B Brown & Sharpe Mfg. type Milling Mche.
- 2-No. 1 Kempsmith Plain Milling Machines.

- 4-12x5 Hendey Q. C. Gear Lathes.
- 2-14x6 Hendey Q. C. Gear Lathes.
- 1-12x5 Pratt & Whitney T. R. Lathe.
- 1-16x6 Monarch Q. C. Lathe.
- 1-18x8 Boye & Emmes Q. C. Lathe.

- 4-7½ H. P., H. D. Snagging Grinders.
- 1-No. 22 Heald Rotary Surface Grinder.
- 1-No. 80 Heald Internal Grinder
- 1-12x36 Queen City Plain Grinder.
- 2-Fitchburg 6x15 Plain Grinders.

- 1-36" Aurora Upright Drill, T. A.
- 1-32" Cincinnati Upright Drill, T. A.
- 1-28" Aurora Upright Drill, T. A.
- 1-26" Barnes Upright Drill, T. A.
- 2-No. 315 Baker Upright Drills, H. D.
- 2-No. 14 Colburn Upright Drills, H. D.

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Pulley Drive, Complete, - - - \$1000.

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Complete - - - - - \$450.

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5' Cincinnati Bickford Radial Drill, Single
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14"x6' Reed Prentice Lathe, Geared Head,
Single Pulley Drive, Taper Attch. \$500.

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We also carry Pulleys, Belting and Hangers
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4' Morris Radial Drill, motor drive thru gear box.
 4' Prentice Radial Drill, gear box drive.
 24"x14' LeBlond Dbl. Bk. Gear Q. C. G., Tap. Att. Lathe.
 Three spindle 20" W. F. & J. Barnes Drill Presses (2).
 Four spindle 20" W. F. & J. Barnes Drill Presses (2).
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 No. 6 Bryant Internal Grinders (2).
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 32"x32"x14' Pond Planer, with two heads.
 2"x24" Jones & Lamson Turret Lathe, with tools.
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 E. G. Ferracute Geared Arch Press, arranged for motor dr.
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 Style C Cleveland Punch, 24" throat, on turn table.
 1/4" Shuster Rotary Elastic Blow Riveter.
 24"x42" Horizontal Tumbling Barrel.
 32"x40" Hoeval Sand Blast Tumbling Barrel, with cabinet.
 30" Whiton Gear Cutter, Spur and Bevel.

*If we have the machine you want YOU save money.
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W. 9th and Front St., Cleveland, O.

QUALITY TOOLS

No. 36S—36"x12" G. & E. Gear Cutter.
 4' Bickford Radial Drill S. P. D., Gear Box.
 32" Cincinnati B. G. Shaper.
 16" Steptoe B. G. Shaper.
 1-Spd. L. & G. Drill pwr. fd., H. S., B. B., No. 2 M. T.
 2-Spindle H. & W. Drill H. S., B. B. No. 2 M. T.
 3-Spindle Allen Drill H. S., B. B., No. 2 M. T.
 4-Spindle Avey Drill, H. S., B. B., No. 2 M. T.
 No. 2 Oakley Univ. Grinder Self Cont., all equipped.
 50"x16" Openside Auto. Surface Grinder.
 No. AB Becker Vertical Mill, Rotary Table.
 Nos. 3 and 4 High Speed Riveting Hammers.
 No. 2 1/2 LeBlond Plain Milling Machine.
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 No. 3 Ohio Univ. Miller, fully equipped 99% new.
 Model C. & D. Shore Scleroscopes.

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¾", 1", 1½", 2½" Acme Upsetter or Header, steel frame, vert. release.
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 Nos. 1, 2, 3, 4, 7 and 9 Williams-White & Co., Bulldozers.
 50, 75, 100, 150, 200, 300 and 500 lb. Bradley Upright Hammers.
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 No. 55 Toledo S. S.Grd. Press; No. 3 Massillon Trimming Press.
 Nos. 1 and 2½ Billings & Spencer Straight Sided Trimming Presses.
 Inclinable Presses: No. 1 Bliss, No. 3-A Willard, No. 2½ Bliss,
 No. 5 Z. & H., No. 6 Adriance, No. 17 Stoll.
 Solid Back Presses: No. 3 Stiles Patt., No. 33 Toledo, No. 34 Toledo
 Grd., No. 3-A Bliss Adjust. Bed; No. 16 Bliss Horning Press.
 Rock River Sgl. End Punch, 16" thrt., arch. jaw, cap. 1" thru 1".
 Style EF Cleveland SE 24" throat, cap. 1¼" thru 1", arch. jaw.
 No. 2 Hilles & Jones SE, 20" throat, cap. 1" thru ¾", rapid action MD.
 Ryerson Quadruple Combination Punch, Bar, Angle Shears & Coper.
 Toledo Gate Shear, Geared cap. 60" x No. 11 gauge.
 Treadwell Guillotine Shear, capacity 6" round MD.
 New Doty Guillotine Shear, cap. 3½" round, MD.
 Pels Armor Plate Shear, capacity 4½" round MD.
 Alligator Shears, No. 1½, No. 2. Doelger & Kirsten.
 Die Sinkers: No. 5 Jackson and No. 5 and No. 6 Becker.
 12" Wall Radial Drill for Structural Work, M. D.
 Threading Machines: 1 & 2-sp. Acme & Landis 1" to 4" Single Sp.
 1", 1½", 2" Landis 2-Spindle with and without lead screws.
 12 Thread Rollers ¼", ⅜", ½", ⅝", ¾" and 1" capacity.
 Pipe Threaders, Williams 8"; Saunders 4".
 Thread Rollers, Cold Headers and Bolt Trimmers, Nut Tappers
 and Hot Pressed Nut Machines.
 6 & 8-Sp. National and Acme Semi-Auto. Nut Tappers, ½" to 1½".
 Blakeslee Metal Washer, motor drive.
 Wire Straighteners, 3/16", ¼", 5/16" and ⅝", Shuster, Etc.
 No. 1A Am. Carbonizing Furnace, Nichrome Retort & Heat Contr.
 No. 65 American Gas Heating Furnaces.
 General Electric Centrifugal Compressors.
 Waterbury-Farrel Draw Bench.
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Bolt Cutters, 1½", 4" Landis Spl. Hd.
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 Bolt Threader, 2 spdl. Namco, ½" to
 ½" capacity.
 Boring Mill, 24" Bullard Prod. Type,
 42" Gisholt Vertical,
 96" Niles Vertical.
 Boring Bar, No. 0 D. & H. 3⅞" Bar.
 Drills.....D-66 Moline, 4 spindle,
 "Hole Hog."
 No. 3 Bausch, 19 spdl.
 No. 30 Natco, 48 spdl.
 Drills, Radial, Cleveland wall.
 3" Marsh Sensitive, m. d.
 3" Cincinnati-Bickford.
 3" Mueller.
 5" Cin-Bickford Univ.
 6" American.
 Grinders.....No. 1 W. & M. Univ.
 No. 16 B. & S. 10"x72"
 Plain.
 10"x50" Norton.
 84" Diamond Face, M.D.
 Hobbers.....Nos. 3 & 12 Barber-Col.

Lathes14"x8" American M. D.
 18"x8" Bradford.
 24"x12" L. & S. Crank.
 MillersNo. 2-A Becker Vert.
 No. 2-B K. & T. Plain,
 Double Overarm.
 No. 3 Cincinnati Plain.
 Thread, 6"x80" P. & W.
 Pipe Mche.....6" Landis.
 Planers.....16" Niles Plate.
 32"x32"x8" Gray.
 36"x36"x12" Cleveland
 Open Side.
 72" wide x 12" Gray.
 PressesBliss N-1 Dbl. Act. Cam.
 No. 21-B Bliss, O. B. I.,
 Geared.
 SawNo. 12-B Higley, Cold.
 Screw Mches., No. 3 Foster, Fr. Hd.
 No. 4 W. & S., Fr. Hd.
 Shapers.....24" G. & E., Back Grd.
 28" Rockford, Back Grd.
 Shear4", 12 ga. Loy & Nawrath
 Power.

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Also 6 tons of High Speed Milling Cutters
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3202 West 98th St., Cleveland, Ohio

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VERTICAL BORING AND TURNING MILLS

- 36⁹ Bullard "New Era" Type Vertical Turret Lathe, Four-jaw chuck table, Motor Bracket, Cutting Lubricant System.
- 96⁹ Cincinnati, Rapid Production Massive Pattern Type, Power Rapid Traverse, Two swivel heads, Table 96⁹ dia. x 8¹ thick, Motor Dr.
- 96⁹ Betts, Two swivel heads, Table 96⁹ dia. x 7⁹ thick, Motor Drive.
- 72⁹ Cincinnati, Rapid Production Massive Pattern Type, Power Rapid Traverse, Two swivel heads, Motor Drive.
- 60⁹ Bullard, Two swivel heads, Single Pulley Drive.
- 42⁹ Bullard, Two swivel heads, Single Pulley Drive.

RADIAL DRILLS

- 5¹ American Triple Purpose.
- 5¹ Niles-B.-P., Semi-Universal.
- 5¹ Bausch Plain.
- 6¹ Dreses Semi-Universal.

MISCELLANEOUS

- No. 5 Cincinnati Miller, S. P. D. 18⁹ Libby Turret Lathe, s. p. d.
- Power Rapid Traverse. 42⁹x14¹ Bridgeford G. Hd. Lathe.
- No. 4 Cincinnati Miller, S. P. D. 18⁹x8¹ LeBlond Lathe, Q. C. G.
- Power Rapid Traverse. 18⁹x96⁹ Norton Plain Grinder.
- No. 1 Standard Auto. Drop Ham. 6-A Potter & Johnson Automatic.
- 16⁹x48⁹ Landis Crankshaft Grinder. 2¾ Cleveland Model A. Auto.

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39 Hamilton St., Newark, N. J.

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Millers,----- Pratt & Whitney No. 12 Lincoln
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Presses,----- Lucas 30 ton Pwr. Forcing Press.
Lucas 15 ton Pwr. Forcing Press.

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Brown & S. No. 0 Automatic.
W. & S. No. 6 Friction Grd. Hd.
Millholland No. 3 Geared Head.

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Machines That Are Hard To Find

4' Triple Purpose American Radial Drill, M. D.
36"x36"x12' Cleveland Open Side Planer.
24" C. & E. and Potter & Johnson Shapers.
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3-spindle No. 2-B Edlund Drill, P. F. to each spindle.
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5-A High Speed Riveting Hammer.
No. 73½ Bliss Press, side shear, fly wheel type.
4-spindle 2½" Gridley Automatics.
1-B Bliss Toggle Drawing Press.
24" New Era Type Bullard Boring Mill.
3-A Warner & Swasey Screw Machine.
6—¾" x ¾" Model A Cleveland Automatics.
No. 55 National Acme, motor drive.
15 and 50 Ton Lucas Forcing Presses.
800 lb. Billings & Spencer Board Drop Hammer.
No. 5½ Niagara Punch Press, geared, O. B. I.
No. 4 and No. 14 Colburn Drill Presses.
28" Cincinnati Drill Press, T. A.

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Detroit, Michigan**

BORING MILL, 36" Bullard V. T. L., (New Era)
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 BORING MILL, 42" King, 2 heads, rapid traverse.
 BORING MILL, 12' Betts, 2 heads, M. D.
 BORING MILL, 8' Betts 2 heads, M. D.
 BULLDOZERS, Nos. 3 & 4 Williams & White.
 CHUCKING MACHINES, Nos. 23 & 24 New Britain Auto.
 DRILL, 7' Bickford Radial, M. D.
 KEYSEATER, No. 3 Baker Bros., cutters & cutter bars.
 LATHE, 36"x36" Bridgeford grd. hd., Q. C. G., M. D.
 LATHE, 54"x18" New Haven, compound rest.
 LATHE, 24" Gisholt Turret, 6¼" hole in spindle. M. D.

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 PLANER, 60"x60"x18' Detrick & Harvey Openside.
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 PRESS, No. 7¾-C Bliss Gap Frame, grd., 6" stroke.
 PRESS, No. 503 Bliss-Consolidated Coining, 250 ton.
 PRESS, SRG-101 Ferracute Dbl. Crank, 34" bet. uprights.
 PRESS, Nos. 4 & 5 Stiles Geared.
 PRESS, No. 663 Toledo Coining, 400 ton cap.

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 2160 Lakeside Ave., Cleveland, Ohio

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No. 3 Brown & Sharpe Vertical Miller—No. 1 Newton Vertical Miller.
 No. 5B Becker Vert. Miller—No. 2½ Hendey and No. 7-H Becker Lincoln type.
 Nos. 24, 25 and 29 Oesterlein Horizontal Universal Millers.
 24x24x12 Ing. Hor. Spd. Slab Miller—30" American Plain Radial Drill, T. A.
 24x24x6 and 30x30x10 Cincinnati Planers 1-hd.—22x22x5 Gray Planer 1-hd.
 48x48x8 Sellers, 48x48x18 New Haven Planers 1 hd.—60x60x18 Pond 2 hds.
 No. 54 Lees Bradner Auto. Thread Miller—No. 3 B. & S. Auto. Gear Cutter.
 Nos. 2, 3 and 6 New Tilted Turret Lathes—16x8 Bradford Q. C. G. Lathe.
 20x10 Davis Q. C. G. Lathe—21x12 LeBlond Q. C. G. Lathe—24x12 Amer.
 Pond 48x40 Ft. Triple Grd. Engine Lathe—16" Stockbridge Grd. Crk. Shaper.
 No. 5 Crosby Stiles Type Punch Press 2½" str.—No. 4 R. & K. O. B. I. 1½" str.
 No. 256B Toledo Dbl. Crank S.S. Pr 4" str.—No. 4 P. & W. Trim. S.S. 3" str.
 80-Lb. Bradley Long Arm Helve Hammers—500 Lb. Beaudry Power Hammer.
 50-Ton Vert. Hyd. Press 2-column—Chgo. Fdy. Co. Allig. Shear cap. 2½" sq.
 No. 2 Carlin Alligator Shear 5x5 cap.—Lennox ¾x6 Rotary Splitting Shear.
 No. 2 Bethlehem Rotary Shear.
 10" Putnam, 16" Betts and 20" Niles Vertical Slotters.
 24" Steidle Turret Lathes—Gardham 4-Spindle Multiple Drill.
 1½" & 2½" Nat'l Dbl.-Hd. Bolt Threading Machines—1½" Ajax Forging Mch.
 20" Newton Cold saw Cut-Off Machine—66" Allen Jaw Riveter.
 6 Ft. Niles Type Plate Bending Roll cap. ½" plate.
 6" Globe Cut-off Machine—Acme 4-Spindle Vertical Nut Tapping Machine.
 Gridley ¾ Sgl. Spdl. Auto. Screw Mchs.—Cleveland Sgl. end Shear 20" blade.
 Morgan Double-end Punch and Shear 24" thro. cap. 1" thru 1".
 36" Cleveland Single-end Punch cap. 1" thru 1"—15" cap. Peis I-Beam Shear.
 Newton Hor. Boring Mill 2½" bar—Std. Eng. Co. Beam Notcher 16" stroke.

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Production Milling Machines—No. 12 Brown & Sharpe.

Automatics—No. 55 National Acme, arranged for chucking small castings.

SURFACE GRINDER—No. 2 Wilmarth & Morman, mag. ck.

FORMED CUTTER GRINDER—No. 3 Union Twist Drill.

SHAPER—17" Smith & Mills, back geared with vise.

LATHE—14"x6" Monarch, q. c. g., and taper attachment.

SIPP DRILL PRESS—3-spindle ball bearing, 3/8" capacity.

RACINE SAW—12"x12" capacity, 3-speed transmission.

Other Good Tools in Stock. Please Send Us Your Inquiries.

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416 E. Woodbridge St., Detroit, Michigan

LOOK-OVER-THIS-LIST

Presses

- No. 56 Toledo S. S. B. G. 4" Stroke, Wt. 14000 lbs.
- 1—No. 21 Bliss O. B. I., wt. 3800 lb. each, stroke 2 1/2".
- No. 2 Robinson Plain S. S. Press, wt. 3500 lbs., 2" stroke.
- No. 15 Waterbury Pl. S. S. 24" bet. Housing 5" Stroke Wt. 6000 lbs.
- 4—Plain Fly Wheel Presses, wt. 2000 lbs. each, 1 1/2" stroke.
- No. 63A Waterbury Farrell S.S.B.G. 6" and 8" Stroke 21" Bet. Housing Wt. 9000 lbs. (2).
- No. 39 Bliss Horn Presses with adjustable tables, (2).

Punches

- Queen City Multiple Punch, 30" between housing.
- No. 4 Long & Allstatter Single End Back Geared, capacity 1/4" thru 1/2".
- No. 6 Whiting Single End, Back Geared, capacity 1/8" thru 1/4".

- 1—Bertsch Rapid Production Punch 18" throat, archt. jaw, wt. 3500 lbs.
- 3—No. 15 Toledo 15" throat.

Gear Cutters

- No. 3—26" B. & S., Spur.
- No. 13 B. & S., Spur and Bevel.
- 36" Gould & Eberhardt Hobber.
- 30" Flather Spur Gear Cutter.

Shapers

- 20" Steptoe B. G. Crank, (2).
- 16" Steptoe Plain Crank.
- 16" Ohio Plain Crank.

Millers

- No. 1 1/2 Valley City Plain.
- No. 1-B Brown & Sharpe Cone Dr.
- No. 1 1/2 Cincinnati Universal.
- No. 2 Cincinnati Plain, 3 step, d.b.g.
- No. 2 Cincinnati Universal.
- No. 3 H. & S. Plain, Cone Drive.
- No. 4 Cincinnati Plain.
- No. 2 Becker Vertical.
- No. 2 1/2 LeBlond Universal.
- No. 3 LeBlond (Univ.) Cone Drive, 3 step, d. b. g.

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- No. 11 Williams & White Punch and Shear, 15" throat; 2½ thru 1½"; A-1 condition.
 400 lb. Williams & White Board Drop Hammer; width bet. guides 14¼"; in fair working order.
 No. 17 Williams & White Punch; 48" throat; flywheel type arranged for motor drive; ½" thru ¾"; like new.
 4" American Radial, single pulley gear box drive; thoroughly rebuilt and in perfect condition.
 15 Ton Lucas Power Forcing Press, wide type; excellent condition.
 Several Moline Hole-hogs, both single and double column types; all in excellent condition.
 20" Rockford heavy-duty Drill; 2" in steel; No. 5 Morse taper; ex. cond. Type D-1 Colburn; 2½" in steel; excellent condition.
 51" Bullard standard Boring and Turning Mill; good condition.
 32x14 Bridgeford, 12 speed, self-oiling, geared head; quick change gears; arranged for motor drive; like new.
 36x16 Gleason loose change gear Lathe; triple geared face plate drive with 38" 4-jaw chuck; excellent condition.
 7x10 and 7x18 Cleveland Precision Surface Grinders; with lever or worm wheel travel; direct motor drive; new.
 No. 3 Warner & Swasey Turret Lathe, like No. 3A; complete with large assortment of bar and chucking equipment; excellent condition.
 4 Spindle No. 515 National Acme Automatic; complete with collets, feed tubes, stock reel, etc. Excellent condition.

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Guaranteed Equipment!

- 6" American Triple Geared Radial Drill, Gear Box Drive.
 3½" Cincinnati-Bickford Radial Drill, Gear Box Drive.
 3" Morris Radial Drill, Gear Box Drive, Motor Driven.
 No. 6 Warner & Swasey Screw Machine, with box tools and collets.
 No. 2 Bardons & Oliver Screw Machine, ¼" Capacity.
 1½" Cleveland Auto. Screw Mch. Model A, with collets and tool.
 No. 2½B Kearney & Trecker Vertical Milling Machine.
 No. 3 Brown & Sharpe Plain Milling Machine.
 No. 1½ American Plain Milling Machine.
 72"x54"x8" Pond Planer, Two Heads on Rail.
 54"x42"x10" Cincinnati Planer, Two Heads on Rail.
 36"x36"x12" Cincinnati Planer, Two Heads on Rail.
 24" Cincinnati Back Geared Shaper Complete.
 18"x8" American Lathe, Quick Change Gear, Complete.
 17"x8" Sidney Lathe, Quick Change Gear, Complete.
 16"x8" Advance Lathe, Quick Change Gear, Complete.

Special Yale & Towne Chain Hoists!

½ Ton \$22.50; 1 Ton \$30; 1½ Ton \$37.50; 2 Ton \$47.50.

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Good Tools at a Reasonable Price

The following is an illustration of our stock

- MOLINE DRILL "Hole Hog" 4 spindles, No. 5 taper, 2 individual tables 17 $\frac{1}{4}$ "x32", oil pump and pan, weight 17500 lbs. Equal to new.....\$1000.
- ACME BOLT CUTTER 2 Spindle, late type, 1" capacity, with automatic die hds., for all practical purposes equal to new 375.
- DRAPER ENGINE LATHE 32"x12', actual swing 34", full swing rest, taper attachment, 2 $\frac{1}{2}$ " hole thru spindle, weight approx. 6000 lbs. A good serviceable tool for boring and turning.....\$ 475.
- GISHOLT 24", 2 step cone, 6 $\frac{1}{4}$ " face, 5" hole thru spindle, taper attachment, lots of extra equipment. A good serviceable tool.....\$ 650.
- GRAY PLANER 30"x30"x8', 2 heads on cross rail, arranged for belted motor drive without motor. This machine is in very good condition.....\$ 950.

The Co-Operative Machinery Co.
7514 Indiana Ave. Cleveland, Ohio

TUBOR-VELICK & CO.

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- ENGINE LATHE, 16x8 Davis, Taper Attachment.
ENGINE LATHE, 26x10 Bridgeford, hvy. duty taper att.
ENGINE LATHE, 26x12 Wickes, heavy duty.
ENGINE LATHE, 30x12 Bridgeford, heavy duty.
ENGINE LATHE, 36x24 Schumacher & Boye, fric. grd.
RADIAL DRILL, 3 ft. Bickford, five step cone drive.
RADIAL DRILL, 3 $\frac{1}{2}$ ft. Bickford, single pulley drive.
RADIAL DRILL, 5 ft. Bickford, single pulley drive.
PLANER, 24x24x8 Whitcomb, two heads on crossrail.
PLANER, 26x26x8 Pond, single head.
PLANER, 60x60x12 Pond, two heads on crossrail.
GEAR CUTTER, No. 5—60 in. Brown & Sharpe.
GEAR CUTTER, No. 3—36 in. Brown & Sharpe.

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To domestic concerns, and superintendents, works managers, production engineers, etc., in such concerns rated at—

Exceeding \$1,000,000.....	1,853
\$500,000 to \$1,000,000.....	1,381
\$300,000 to \$ 500,000.....	1,358
\$200,000 to \$ 300,000.....	1,137
\$125,000 to \$ 200,000.....	1,555
\$ 75,000 to \$ 125,000.....	1,763
\$ 50,000 to \$ 75,000.....	1,372
\$ 20,000 to \$ 50,000.....	3,132
\$ 10,000 to \$ 20,000.....	2,024
\$ 5,000 to \$ 10,000.....	1,722

TOTAL to Private Concerns of over \$5,000.. 17,297

Steam and Street Railway Mechanical and
Purchasing Officials, Government and Mu-
nicipal Plants, Technical Schools, Selected
Foreign Dealers and Users, Etc.,..... 2,927

TOTAL to Buyers of Known Responsibility.. 20,224

*Concerns quoted in Dun or Bradstreet, but
without Capital Rating..... 2,652

Concerns not yet in either Dun or Bradstreet,
which includes new industries..... 1,514

Concerns rated below \$5,000 1,188

TOTAL CIRCULATION 25,578

*This group includes a considerable number of large concerns,
and some small ones of high credit, whose capital rating is not
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Name

Address

We are in market for

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